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The Dynamics of Service Quality on Customer Satisfaction: The Moderating Role of Post-Purchase Dissonance in E-Commerce

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ABSTRACT

The World is moving faster than ever the e-commerce markets aren't only focusing on simple transaction completion but also managing the first class customer experience. This research paper aims to explore how the dimensions of Service Quality (Reliability, Responsiveness, Communication) affect Customer Satisfaction in the context of e-commerce services in Pakistan. The research model is based on the Expectation-Confirmation Theory (ECT) and Cognitive Dissonance Theory and suggests a complete model of mediation and moderation that involves the Customer Retention and Post-Purchase Dissonance respectively. The research design used in this study was quantitative, cross-sectional type and the sample used was 385 online consumers that had made at least one e-commerce transaction in the last six months. The conceptual model was then tested and validated empirically with the method of Partial Least Squares Structural Equation Modeling (PLS-SEM) with the software used is SMARTPLS. The findings indicate that Responsiveness and Communication have significant and positive impact on Customer Satisfaction. Interestingly, the hypothesis relating Reliability to Customer Satisfaction was rejected, which is explained in detail, as in Pakistan's highly Cash on Delivery (COD) oriented market, Reliability serves as a 'hygiene factor' and not as a customer satisfaction driver. This means that Customer Retention plays a crucial role as an intermediate step between these dimensions of service and satisfaction in the long run. Besides, the study has verified that the relationship between Customer Retention and Customer Satisfaction is not moderated by Post-Purchase Dissonance. The results offer important learning points, and these highlight the importance of proactive communication as opposed to basic reliability, which consumers expect.

Introduction

Background of the Study

The rapid expansion of e-commerce has significantly transformed consumer purchasing behavior by offering greater convenience, wider product variety, and competitive pricing. Global e-commerce sales are projected to reach approximately \$6.88 trillion to \$8.1 trillion by 2026 and are expected to continue growing at an accelerated pace. This growth is driven by increased internet penetration, widespread smartphone usage, and the adoption of digital payment systems, which have made online transactions more accessible and efficient (Tombus et al., 2024). While these developments have simplified the purchasing process, they have also introduced new complexities in how consumers evaluate their experiences, particularly in digital environments where physical interaction is absent.

In online settings, consumers rely heavily on service-related cues such as communication, responsiveness, and reliability to form judgments about their experiences. Unlike traditional retail environments, where product inspection and face-to-face interaction reduce perceived risk, e-commerce transactions are characterized by information asymmetry and delayed consumption. As a result, the quality of service delivery becomes a critical determinant of how consumers perceive and evaluate their purchase experience. Effective communication reduces ambiguity by providing accurate and timely information, responsiveness ensures that customer concerns are addressed promptly, and reliability confirms that service promises are fulfilled consistently (Parasuraman et al., 2005). Together, these factors play a central role in shaping customer perceptions, particularly in online environments where service quality acts as a substitute for physical interaction (Zeithaml et al., 2002).

Customer satisfaction is widely recognized as a key evaluative outcome in consumer behavior research, reflecting the extent to which expectations are met or exceeded. In digital contexts, satisfaction represents a cognitive evaluation of service performance and has traditionally been viewed as a precursor to behavioral outcomes such as customer retention (Amin et al., 2021). Satisfied customers are generally more likely to continue using a platform, engage in repeat purchases, and develop long-term relationships with service providers (Febriend and Qastharin, 2024). Prior studies across various industries including healthcare, retail, banking, and hospitality consistently highlight the strong relationship between service quality dimensions and customer satisfaction, as well as the subsequent impact on retention and loyalty (Goutam and Gopalakrishna 2021; Omar et al., 2011).

However, in digital environments, customer evaluation is not always linear or purely performance-based. Continuous interaction with online platforms allows customers to refine their expectations and reassess their experiences over time. While traditional models emphasize satisfaction as a driver of retention, this study adopts an alternative perspective by considering how continued usage (customer retention) may influence satisfaction through familiarity and repeated interaction. This perspective is particularly relevant in e-commerce settings, where customers engage with platforms multiple times and gradually form more stable evaluations of service performance.

At the same time, consumer evaluations are influenced not only by service performance but also by psychological factors that emerge after purchase. One such factor is post-purchase dissonance, which refers to the discomfort or doubt consumers experience when they question the correctness of their purchase decision (Festinger, 1957). In online environments, this dissonance may be triggered by exposure to alternative options, perceived better deals, or uncertainty about product quality and value. Unlike satisfaction, which reflects an evaluation of performance, post-purchase

dissonance captures the psychological tension that may coexist with or even contradict positive evaluations.

The presence of post-purchase dissonance highlights that favorable service evaluations do not always lead to consistent behavioral outcomes. Even when customers report satisfaction, underlying doubt or hesitation may influence their willingness to continue using a platform. Therefore, post-purchase dissonance is conceptualized as a moderating factor that influences the strength of the relationship between customer satisfaction and customer retention. It does not directly determine satisfaction or retention but conditions how strongly satisfaction translates into continued usage.

These dynamics are particularly relevant in emerging e-commerce markets such as Pakistan, where the sector has experienced rapid growth in recent years. This growth has been supported by increased smartphone usage, improvements in logistics infrastructure, and government-led digital initiatives (Pakistan Telecommunication Authority [PTA], 2023). Despite this progress, consumer skepticism remains relatively high due to issues such as delivery delays, inconsistent product quality, weak consumer protection mechanisms, and low institutional trust (Javed and Wu, 2020). In such contexts, both service quality and psychological factors play a critical role in shaping consumer behavior.

Within this context, the present study integrates service quality dimensions, customer satisfaction, and customer retention into a unified framework while incorporating post-purchase dissonance as a moderating variable. By examining how communication, responsiveness, and reliability influence satisfaction and how the satisfaction–retention relationship is conditioned by dissonance this study provides a more comprehensive understanding of consumer behavior in e-commerce environments.

Research Aim and Objectives

The primary aim of this study is to examine how service-related factors (reliability, responsiveness, and communication) influence customer retention and customer satisfaction in Pakistan's e-commerce sector, while investigating the mediating role of customer retention and the moderating role of post-purchase dissonance.

Research Questions

This study seeks to answer the following research questions

- How does reliability influence customer retention in e-commerce settings?
- What is the impact of responsiveness on customer retention in online environments?
- How does communication affect customer retention in e-commerce platforms?
- How do service quality dimensions (reliability, responsiveness, communication) influence customer satisfaction?
- What is the relationship between customer retention and customer satisfaction in e-commerce contexts?
- Does customer retention mediate the relationship between service quality dimensions and customer satisfaction?
- Does post-purchase dissonance moderate the relationship between customer retention and customer satisfaction?

Significance of the Study

Theoretical Significance

This study contributes to the existing literature by integrating service quality and psychological perspectives within the context of e-commerce. While prior research has extensively examined the role of service quality in influencing customer satisfaction and retention, limited attention has been given to understanding the underlying mechanisms and boundary conditions of these relationships (Rasool, 2022). Specifically, this study introduces customer retention as a mediating variable that explains how service quality dimensions translate into customer satisfaction through continued usage and interaction.

In addition, the study incorporates post-purchase dissonance as a moderating variable, thereby extending existing models by examining how psychological discomfort influences the strength of the relationship between customer retention and customer satisfaction. By combining behavioral and psychological perspectives, this study provides a more comprehensive framework for understanding online consumer behavior (Zheng et al., 2019).

Practical Significance

From a managerial perspective, this study offers valuable insights for e-commerce firms seeking to improve customer experience and retention. The findings highlight the importance of service quality dimensions reliability, responsiveness, and communication in influencing both customer retention and satisfaction. Firms can use these insights to enhance service delivery processes, improve response systems, and provide clearer communication to customers.

Furthermore, by recognizing the role of post-purchase dissonance, organizations can design effective post-purchase strategies such as reassurance communication, transparent policies, and responsive customer support to reduce customer uncertainty. Addressing psychological discomfort can strengthen customer confidence and increase the likelihood of continued platform usage.

Contextual Significance

This study is particularly relevant in the context of Pakistan, where the e-commerce sector is expanding rapidly but faces challenges related to consumer trust and service reliability. Issues such as delayed deliveries, inconsistent product quality, and weak customer support contribute to uncertainty and negative post-purchase experiences (Rizwan et al., 2014).

By focusing on both service-related and psychological factors, this study provides context-specific insights that can help improve customer experience in emerging digital markets. The findings are expected to support businesses in developing strategies that enhance trust, reduce uncertainty, and strengthen long-term customer relationships.

Literature Review

Reliability and Customer Retention

Reliability has been widely examined as a critical dimension of service quality, particularly in online environments where customers depend on consistent and accurate service delivery. In e-commerce settings, reliability is associated with timely order fulfillment, accurate product delivery, and dependable platform performance. Given the inherent uncertainty in digital transactions, reliable service plays a crucial role in building trust and reducing perceived risk. Empirical studies consistently demonstrate the positive impact of reliability on customer retention. For example, Javed et al. (2021) found that reliability significantly influences customers' continuance intention

by reinforcing trust in online platforms. Similarly, Fang et al. (2021) reported that consistent service performance enhances customer confidence, which leads to higher levels of platform reuse and loyalty. In addition, Ashfaq et al. (2020) identified reliability as a key predictor of continuance behavior, emphasizing that customers are more likely to remain engaged with platforms that consistently meet their expectations. Their findings suggest that reliability reduces uncertainty and strengthens perceived service quality, which encourages repeated usage. Moreover, recent research by Tandon et al., (2020) highlights that reliable digital services improve customer perceptions of platform credibility, thereby increasing retention rates. The study demonstrates that when customers perceive a platform as dependable, they are more likely to maintain long-term relationships with the service provider. Overall, the empirical literature provides strong evidence that reliability plays a significant role in shaping customer retention. Consistent and accurate service delivery enhances trust, reduces perceived risk, and encourages continued engagement in e-commerce environments.

H1: Reliability has a significant positive effect on customer retention.

Responsiveness and Customer Retention

Responsiveness is another important dimension of service quality that reflects the ability of a firm to provide timely and effective assistance to customers. In e-commerce environments, responsiveness is demonstrated through prompt replies to customer inquiries, efficient complaint handling, and quick resolution of service issues (Priyo et al., 2019). Due to the absence of face-to-face interaction, responsiveness becomes essential for maintaining customer confidence and ensuring a positive service experience. Empirical studies indicate that responsiveness has a significant impact on customer retention. For instance, Priyo et al. (2019) found that timely service responses improve customer satisfaction and strengthen loyalty, leading to higher retention levels. Similarly, Goutam and Gopalakrishna (2021) reported that responsiveness enhances perceived service quality, which positively influences customers' intention to continue using online platforms. Further evidence is provided by Uche et al., (2021), who found that responsiveness plays a crucial role in building trust and maintaining customer relationships in digital environments. Their study highlights that customers are more likely to remain engaged with platforms that provide efficient and effective support. Additionally, Hossain et al. (2023) demonstrated that responsiveness significantly influences customer retention by reducing frustration and improving overall service experience. These findings suggest that responsiveness not only enhances immediate service evaluation but also contributes to long-term behavioral outcomes. Platforms that respond quickly and effectively to customer needs are more likely to foster trust and encourage repeat usage.

H2: Responsiveness has a significant positive effect on customer retention.

Communication and Customer Retention

Communication is a critical dimension of service quality that involves providing clear, timely, and relevant information to customers throughout the service process. In e-commerce environments, communication includes order confirmations, delivery updates, product details, and post-purchase interactions, which help customers better understand the service experience. Effective communication reduces ambiguity and enhances transparency, thereby strengthening customers' confidence in digital platforms (Tandon et al., 2020). Empirical studies consistently highlight the role of communication in influencing customer retention. For instance, Irfan et al. (2021) found that clear and consistent communication significantly improves customers' intention to continue using online services by enhancing perceived reliability and trust. Similarly, Fath et al., (2024)

reported that timely information sharing reduces uncertainty and strengthens customer engagement, leading to higher retention levels. In addition, research by Kaur et al. (2023) demonstrates that effective communication contributes to long-term customer relationships by improving service clarity and reducing perceived risk. Their findings suggest that customers are more likely to remain loyal to platforms that maintain transparent and continuous communication throughout the service journey. Overall, empirical evidence suggests that communication is a key determinant of customer retention in e-commerce environments. By ensuring transparency, reducing uncertainty, and strengthening trust, effective communication encourages continued platform usage and long-term engagement.

H3: Communication has a significant positive effect on customer retention.

Customer Retention and Customer Satisfaction

Customer retention reflects the extent to which customers continue to engage with a service provider over time. In digital environments, retention is not only a behavioral outcome but also a process that involves repeated interaction with a platform, which shapes customer perceptions and evaluations (Ashfaq et al., 2020). Continuous usage enables customers to become familiar with service processes, which reduces uncertainty and enhances their overall experience (Seridaran et al., 2024). Empirical studies suggest that repeated interaction plays a significant role in influencing customer satisfaction. For example, Shao et al., (2026) found that continued engagement with digital platforms improves customer satisfaction by strengthening perceived value and trust. Similarly, Lee and Kim (2025) reported that customers who repeatedly use online services tend to develop more favorable evaluations due to increased familiarity and reduced perceived risk. Furthermore, research by Zhao et al. (2023) highlights that retention contributes to satisfaction by enabling customers to refine their expectations through repeated experience. As customers interact more frequently with a platform, they gain better understanding of service features, which leads to more consistent and positive evaluations. These findings indicate that customer retention plays an important role in shaping customer satisfaction in e-commerce contexts. Continuous engagement allows customers to develop confidence in the platform, which enhances their overall evaluation of the service experience.

H4: Customer retention has a significant positive effect on customer satisfaction.

Relationship between independent variable and mediating customer retention.

Service quality dimensions have been widely recognized as key determinants of customer satisfaction in both traditional and digital environments. In e-commerce settings, reliability, responsiveness, and communication play a crucial role in shaping customer evaluations by influencing how customers perceive service performance. These dimensions are particularly important in online contexts, where customers rely on service interactions rather than physical experience. Empirical research provides strong evidence supporting the relationship between reliability and customer satisfaction. For instance, Wilson et al.,(2021) found that reliable service delivery significantly enhances customer satisfaction by ensuring consistency and reducing uncertainty. Similarly, Sharif et al. (2018) reported that reliability positively influences customer evaluations by improving service credibility and trust. Responsiveness has also been identified as a key factor influencing customer satisfaction. Studies indicate that prompt and effective responses to customer inquiries improve satisfaction levels by enhancing service experience. For example, Nguyen et al. (2022) found that responsiveness significantly improves customer satisfaction by addressing customer concerns efficiently. Likewise, Demirel (2022) reported that timely service responses strengthen customer perceptions and lead to more favorable evaluations.

Communication further plays an important role in shaping customer satisfaction, particularly in digital environments. Clear and transparent communication ensures that customers receive accurate information, which reduces ambiguity and enhances their experience. For instance, Irfan et al. (2021) found that effective communication significantly improves customer satisfaction by increasing trust and reducing perceived risk. Similarly, Tandon et al., (2020) reported that transparent communication enhances customer confidence, leading to improved satisfaction levels. Overall, empirical evidence suggests that service quality dimensions—reliability, responsiveness, and communication—directly influence customer satisfaction by shaping how customers evaluate their service experience.

H5: Reliability has a significant positive effect on customer satisfaction.

H6: Responsiveness has a significant positive effect on customer satisfaction.

H7: Communication has a significant positive effect on customer satisfaction

Mediating Role of Customer Retention

The impact of service quality on customer satisfaction can be a critical channel in which customers' satisfaction is influenced by customer retention, especially in a digital context where customers are continuously interacting with the service. Such service dimensions as reliability, responsiveness, and communication in e-commerce contexts have an impact not just on initial impressions, but on the resulting behaviors, including brand loyalty and retention, as well. In this ongoing cycle, customers' service experience builds up over time, which, over time, will fine-tune their evaluative judgments about the services. This intermediate mechanism is well supported by empirical research. For example, Qalati et al. (2021) tried to find out the effect of perceived service quality on online shopping behavioral intentions. Their study used a sample of 402 online consumers in Pakistan to reveal that functional service dimensions foster platform engagement and serve as a tool to consolidate positive consumer perceptions and lower perceived risk when making repeat purchases. Likewise, Peña-García et al. (2020) did a study across cultures for the purpose of examining psychological and behavioural factors that affect the online purchase behavior. They investigated the effects of the Internet on a sample of 628 Internet users in Spain and in Colombia and discovered that customers can continually revise their cognitive evaluations after repeated exposure to the Internet (retention). It is a day-to-day usage that acts as a mediator between the signals of service quality at the initial level and the cumulative level of satisfaction. The other evidence is from Lin et al. (2020) who were interested in exploring how interactive service quality impacts the engagement and relational effect of the customers. The researchers found responsiveness and consistent communication to be factors that can help maintain a relationship with a platform, after a sample of 320 users of an e-commerce platform in China. This retention is an intermediate step where customers get acquainted with the brand, thus significantly increasing the satisfaction of the customers in the long run. Finally, Alalwan (2020) embarked on a study to understand what factors are responsible for sustaining the use and what impact this would have on online evaluations. The study applied on 343 digital consumers in Jordan, showed that the continuous usage acts as a link between the other variables. This continuous behavioural relationship is vitally important in the digital context to ensure a strong Customer Satisfaction, and is directly dependent of the quality of services offered. In general, empirical studies show that customer retention is a mediating mechanism that changes dynamically. It builds the linkage between reliability, responsiveness, communication, and customer satisfaction, and provides the opportunity to continually interact and enhance customer experiences.

H8: Reliability lies between the customer satisfaction and customer retention.

H9: There is mediation between responsiveness and customer satisfaction through customer retention is tested.

H10: Communication not only indirectly affects customer satisfaction via customer retention, but also directly influences it.

Moderating Role of Post-Purchase Dissonance

Post-purchase dissonance refers to the psychological discomfort experienced by consumers after making a purchase decision, particularly when they are uncertain about whether they made the correct choice. In e-commerce environments, this phenomenon is intensified due to the availability of multiple alternatives and continuous exposure to information, which encourages consumers to reassess their decisions (Haque et al., 2026). Empirical studies highlight the significant influence of post-purchase dissonance on consumer evaluation. For example, Zhao et al. (2023) reported that consumers experiencing dissonance tend to question their choices, which weakens their evaluation of the service experience. In digital environments, the role of dissonance becomes more complex as customers continue to interact with the platform after purchase. Studies suggest that even when customers remain engaged with a service, dissonance can influence how they interpret their experiences (Penz & Hogg, 2021). This indicates that behavioral engagement alone does not guarantee positive evaluation outcomes. Furthermore, recent research emphasizes that post-purchase dissonance does not directly determine satisfaction but rather alters the strength of the relationship between behavioral engagement and evaluation. For instance, Biswakarma et al., (2025) found that dissonance weakens the positive relationship between continued usage and satisfaction by introducing doubt and hesitation. Similarly, studies in online contexts demonstrate that dissonance can reduce the positive effect of retention on satisfaction by affecting customer confidence (Sharif & Yeoh, 2018). These findings suggest that post-purchase dissonance functions as a moderating variable that conditions how customer retention translates into customer satisfaction. When dissonance is low, continued usage is more likely to enhance satisfaction. However, when dissonance is high, the positive effect of retention on satisfaction is weakened due to psychological conflict and uncertainty.

H11: Post-purchase dissonance moderates the relationship between customer retention and customer satisfaction.

Conceptual framework

The conceptual framework of this study illustrates the relationships among service quality dimensions, customer retention, and customer satisfaction, while incorporating post-purchase dissonance as a moderating variable.

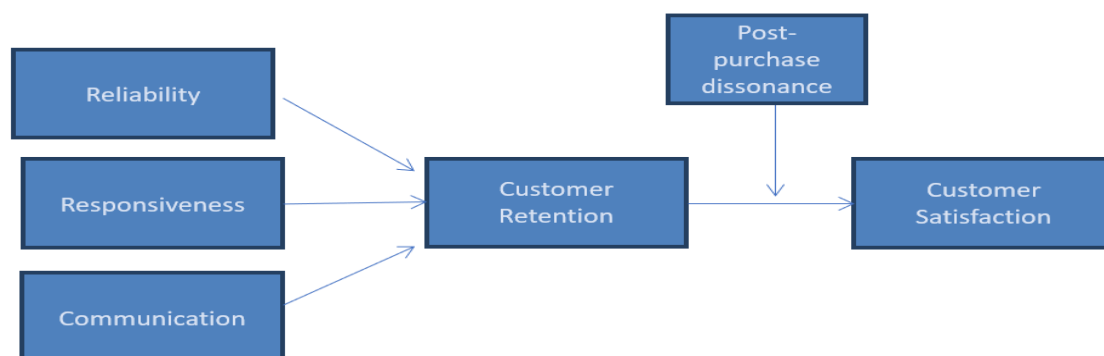


Figure 1 Conceptual framework

Research Gap

Existing literature has extensively examined the relationships between service quality, customer satisfaction, and customer retention, particularly in e-commerce environments. Most studies conceptualize customer satisfaction as a primary antecedent of customer retention, suggesting that satisfied customers are more likely to engage in repeat purchases and continued usage (Sharif et al., 2018). Similarly, prior research has emphasized the importance of service quality dimensions such as reliability, responsiveness, and communication in shaping customer satisfaction and behavioral outcomes (Blut et al., 2015).

However, several important gaps remain in the literature. First, the majority of studies adopt a unidirectional perspective in which customer satisfaction leads to customer retention, while limited attention has been given to examining the reverse relationship. In digital environments, where customers interact continuously with platforms, satisfaction may evolve over time as a result of repeated usage and familiarity. This suggests that customer retention may also influence customer satisfaction, an area that remains underexplored (Ashfaq et al., 2020).

Second, while previous studies have examined the direct effects of service quality on customer satisfaction and retention, limited research has explored customer retention as a mediating mechanism. In e-commerce contexts, service quality may influence customer behavior by encouraging continued usage, which subsequently shapes customer evaluation. This indirect pathway provides a more comprehensive understanding of how service performance translates into satisfaction (Seridaran et al., 2024).

Third, although post-purchase dissonance has been widely studied as a psychological outcome, its role as a moderating variable remains insufficiently examined. Existing studies primarily focus on its direct effects on satisfaction and loyalty, with limited attention given to how it influences the relationship between retention and satisfaction in digital environments (Haque et al., 2026).

Therefore, this study addresses these gaps by proposing a framework that examines service quality as a determinant of customer retention, considers retention as a mediating variable influencing satisfaction, and incorporates post-purchase dissonance as a moderating factor. This integrated approach provides a deeper understanding of consumer behavior in e-commerce settings and contributes to the literature by combining behavioral and psychological perspectives.

Methodology

Research Design

The research design that will be used in this research is quantitative research. Where the goal is to describe the relationship between variables, and to test hypotheses using statistical techniques, quantitative research is used. It allows for generalisation from data analysis of numbers, is widely used in consumer behaviour and marketing research (Saunders et al., 2019). The study was cross sectional which means data was obtained at any one time and not over time. The design can be used for studies regarding consumer perception, attitudes and behavioural intention in an e-commerce environment. The cross sectional type of research is efficient and economical one for analysis of the relation between two variables as opposed to the observation of them over some period of time (Bryman, 2016).

Research Approach

In this study, a deductive research method was used. Deductive reasoning is a process of using existing theories and literature to derive hypotheses which are then tested using data. This study

primarily adopts the SERVQUAL theory which asserts that service quality is one of the factors affecting customers' satisfaction. Parasuraman et al (1988) had proposed three dimensions of service quality – reliability, responsiveness and communication which influence the customers perception of service.

Furthermore, there has been a theoretical argument to use the concept of relationship marketing which suggests that satisfied customers are more likely to be loyal and that they will continue to purchase goods/services from the same relationship platform (Morgan & Hunt, 1994). According to the theory, the hypotheses were formulated and tested using PLS-SEM.

Population and Sample

The study's target population are individuals who are shopping online, via any e-commerce platform. That includes users who access these sites, such as Daraz, Amazon and social media platforms including Instagram and Facebook stores. With the expansion of e-commerce in Pakistan, there is a huge and diverse consumer base with different ages, education levels, income and purchasing power. This diversity highlights the need for understanding customer perceptions to determine the role of service quality in customer satisfaction and retention in the digital world.

As the users are not registered in a centralised database the exact number of users of e-commerce is unknown. Further, the population is concentrated in urban and semi-urban areas, and it is not impractical to have a complete sampling frame. Thus, a sample is taken to represent this larger group. The sample size is 385, believed to be adequate for PLS-SEM analysis. Table 3.1 Demographics. In contrast to covariance-based SEM, PLS-SEM is a sample size independent method and it is recommended that the sample size be 300 or more observations when the models have multiple latent constructs, mediation and moderation effects (Sarstedt et al.,2021).

The number of samples selected is sufficient to have a meaningful relationship between the variables and is also stable enough to apply structural path analysis. Also, this sample size is suitable for models that have more than one indicator of each construct, such as this study, which has four indicators for each latent variable. A sample of 385 also minimises the chance of sampling error and boosts the reliability of parameter estimates in the structural model. Thus, the sample was deemed sufficient in meeting the purpose of this research.

Sampling Technique

This study uses sampling method that is non-probability sampling technique and the sampling technique used in this study is convenience sampling. Availability, accessibility and willingness of participants to the study is convenience sampling. This technique has been widely used in behaviour studies and e-commerce, where it is difficult to get the complete list of online consumers (Etikan, Musa and Alkassim, 2016). It enables you to collect data from the real users of e-commerce sites. Convenience sampling may limit the generalisability of the results from the study, but may be suitable if the study involves exploring relationships among the variables..

Research Instrument

The research instrument used in this study is a closed-ended structured questionnaire designed to measure all constructs in the research model.

The questionnaire is divided into two sections:

Demographic Information

This section collects respondent background information including:

Table 1 Demographics

Variable	Category	Frequency	Percentage (%)
Age	18-25	148	38.2%
	26-35	148	38.2%
	36-45	63	16.3%
	46-55	28	7.2%
Gender	Female	193	49.9%
	Male	158	40.8%
	Prefer not to say	36	9.3%
Online Shopping Frequency	Occasionally	149	38.5%
	Frequently	110	28.4%
	Rarely	65	16.8%
	Very frequently	63	16.3%
Most Used Platform	Instagram/Facebook	119	30.7%
	Temu	99	25.6%
	Daraz	71	18.3%
	International platforms	60	15.5%
	Other	38	9.8%

Note: The table shows the demographic distribution of the respondents. A total of 385 valid responses were included in the study.

Measurement scales

The research instrument employed in this study is a structured questionnaire that was used to measure all the constructs employed in the conceptual model. The questionnaire is designed based on measurement scales used in the question already developed and validated in literature to ensure the content validity, reliability and comparability of the question. This questionnaire will have two sections. The Likert scale is commonly used in social science and marketing research because it enables social science and marketing researchers to ask their participants to indicate the strength of their response to statements on a structured basis in a simple manner. The five-point scale is chosen over the seven-point scale because it does not cause respondent confusion and it means there is less time taken to complete a questionnaire, which in turn means there will be a higher response rate, particularly for online surveys where respondents may not have much time to fill out questionnaires. It also offers adequate variation of responses and simplicity and clarity. Constructs employed in this study are borrowed from existing scales. The items used to measure communication are based on the information accuracy, timeliness and trustworthiness developed by Ndubisi (2007).

Responsiveness is the attribute derived from the SERVQUAL model developed by Parasuraman, Zeithaml, and Berry (1988), which focuses on the speed of service, the willingness to help the customer and the prompt response to customer questions. The reliability aspect is based on Gazi et al. (2025) and is measured by the consistency, accuracy of transactions and the dependability of the services. Customer satisfaction and customer retention are also used from Gazi et al. (2025), as they are commonly employed in e-commerce studies for measuring the outcomes of customer experience. The measure for post-purchase dissonance is based on items created by Mattia et al., (2021) that capture feelings of regret, doubt and psychological discomfort after a purchase decision. Employing scales that are validated and have been tested previously helps to make the

measurement instrument have a strong theoretical basis and makes the research results more reliable. It also enables comparison of results to the existing literature in a similar domain.

Statistical Analysis Technique

The collected data are analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with software programs enveloped in SmartPLS, and the hypotheses are tested. Because of its versatility to simultaneously process multiple constructs, mediating and moderating effects, and complex models in behavioral and management studies, the PLS-SEM method has gained widespread popularity (Sarstedt et al., 2021). The analysis is carried out systematically, starting with the PLS algorithm, measurement model evaluation, structural model evaluation, mediation analysis, and moderation analysis, all of which are performed on the software SmartPLS.

Measurement Model Assessment

The measurement model evaluates how well the observed indicators measure their respective latent constructs. All constructs in this study are modeled as reflective constructs. The assessment of the measurement model includes indicator reliability, internal consistency reliability, and convergent validity.

Indicator Reliability (Outer Loadings)

Indicator reliability is assessed through outer loadings, which measure the strength of the relationship between indicators and their respective constructs. A commonly accepted threshold is:

- 0.70 or above indicates strong indicator reliability
- Loadings between 0.60 and 0.70 may be retained in exploratory research if overall model reliability is adequate (Sarstedt et al., 2021)

Indicators with low loadings may be removed if they negatively affect construct validity.

Internal Consistency Reliability

Internal consistency is assessed using two measures:

Cronbach's Alpha

Cronbach's Alpha evaluates the consistency among indicators measuring the same construct. A value of:

- ≥ 0.70 is considered acceptable
- Higher values indicate stronger internal consistency

Composite Reliability (CR)

Composite Reliability is preferred in PLS-SEM as it accounts for different indicator loadings. A value of:

- ≥ 0.70 indicates satisfactory reliability

CR is considered a more accurate measure compared to Cronbach's Alpha in structural equation modeling contexts.

Convergent Validity

Convergent validity assesses whether indicators of a construct share a high proportion of variance. It is measured using Average Variance Extracted (AVE) as $AVE \geq 0.50$ indicates adequate convergent validity. This means that more than 50% of variance in indicators is explained by the latent construct (Fornell & Larcker, 1981)

Table 2 Measurement Model Assessment Criteria

<i>Assessment</i>	<i>Indicator</i>	<i>Threshold</i>	<i>Source</i>
Indicator Reliability	Outer Loadings	≥ 0.70	Sarstedt et al. (2021).
Internal Consistency	Cronbach's Alpha	≥ 0.70	Nunnally & Bernstein (1994)
Construct Reliability	Composite Reliability	≥ 0.70	Sarstedt et al. (2021).
Convergent Validity	AVE	≥ 0.50	Fornell & Larcker (1981)

Note: This table presents the key criteria for assessing reliability and validity of the measurement model in PLS-SEM, including standard thresholds for each indicator.

Discriminant Validity Assessment

Discriminant validity ensures that each construct in the model is empirically distinct from other constructs. This study uses two widely accepted methods:

Heterotrait-Monotrait Ratio (HTMT)

HTMT is considered the most reliable method for assessing discriminant validity in PLS-SEM. A value of less than 0.90 indicates acceptable discriminant validity (Henseler, Ringle & Sarstedt, 2015). HTMT provides a more accurate assessment compared to traditional methods.

HTMT Inference

HTMT inference is also assessed using bootstrapped confidence intervals.

- If the confidence interval does not include the value 1, discriminant validity is established
- This strengthens the robustness of the measurement model evaluation

Fornell-Larcker Criterion

As a supporting method, the Fornell-Larcker criterion is used, where the square root of AVE for each construct should be greater than its correlation with other constructs .

Results and Data Analysis

Demographic Analysis

Demographic analysis was used to get an insight into the demographic profile of the respondents in the study. The demographic data part of the questionnaire consisted of age, gender, educational qualification, frequency of online shopping and preferred e-commerce platform. The aim of the demographic analysis was to ensure that the respondents were kept as diverse as possible, and to find out the general picture of consumers participating in online shopping activities.

The demographic profile of respondents has already been presented in Table 1 in Chapter 3. A total of 385 valid responses were included in the study. The results indicate that the largest proportion of respondents belonged to the age groups of 18–25 and 26–35, both representing 38.2% each,

showing that the sample is mainly composed of young and active online shoppers. Respondents aged 36–45 accounted for 16.3%, while those aged 46–55 represented 7.2%, indicating lower participation from older age groups.

In terms of gender distribution, females constituted 49.9% of the sample, males 40.8%, and 9.3% preferred not to disclose their gender, reflecting a relatively balanced representation. Regarding shopping frequency, 38.5% reported occasional shopping, 28.4% frequent shopping, 16.8% rare shopping, and 16.3% very frequent shopping, indicating varied but meaningful engagement with e-commerce platforms. Furthermore, Instagram/Facebook stores (30.7%) and Temu (25.6%) emerged as the most commonly used platforms, followed by Daraz (18.3%) and international platforms (15.5%).

Measurement Model Assessment

The measurement model assessment was used to test the reliability and validity of the constructs used in the study. This study explored constructs related to communication, responsiveness, reliability, customer retention, customer satisfaction and post-purchase dissonance. The measurement model assessment is crucial since it indicates whether indicators reflect their corresponding latent constructs.

Outer Loadings

Assessment of outer loadings was used to ensure the reliability of the indicators. Sarstedt et al.,(2021) suggest that an outer loading of > 0.70 is adequate to represent a construct using the indicators. Items that have loadings below the acceptable limit will have a negative contribution to the construct validity and are generally considered for removal. The results of outer loadings are provided in Table 3

Table 3 Outer Loading Table

Construct	Item	Outer Loading
Communication	COM1	0.777
	COM2	0.796
	COM3	0.836
	COM4	0.859
Customer Retention	CR1	0.866
	CR2	0.836
	CR3	0.898
	CR4	0.867
Customer Satisfaction	CS1	0.848
	CS2	0.844
	CS3	0.770
	CS4	0.761
Post-Purchase Dissonance	PPD1	0.894
	PPD2	0.881
	PPD3	0.893
	PPD4	0.906
Reliability	REL1	0.842
	REL2	0.737
	REL3	0.732
	REL4	0.714
Responsiveness	RES1	0.810

Construct	Item	Outer Loading
	RES2	0.841
	RES3	0.838
	RES4	0.823

The findings indicated that all measurement items achieved acceptable outer loading values. The outer loadings ranged from 0.714 to 0.906, which exceeded the recommended threshold of 0.70. Therefore, all indicators were retained in the final model. The results suggest that all indicators adequately represented their respective latent constructs and contributed positively toward construct reliability.

Measurement Model Assessment

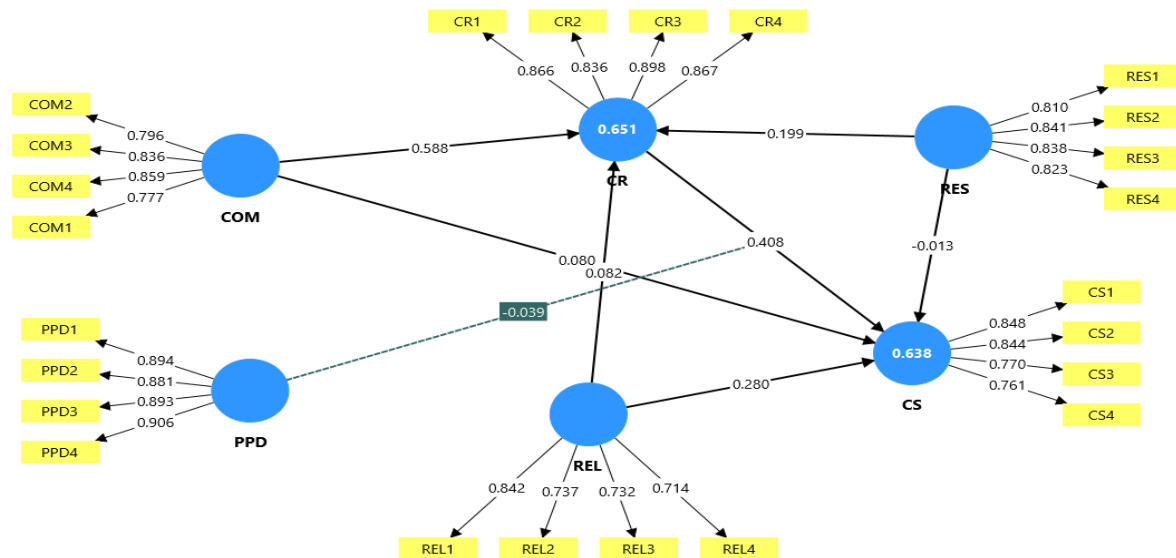


Figure 2 Measurement Model

Figure 4.1 presents the measurement model generated through SmartPLS software. The figure demonstrates the relationship between latent constructs and their observed indicators. The outer loading values displayed in the model further support the reliability of the measurement items.

Reliability and Convergent Validity

Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) were employed to determine reliability and convergent validity. Reliability is the extent to which the measurement items are internally consistent, and convergent validity is the extent to which the indicators all measure the same construct.

Based on the Cronbach's alpha and composite reliability values of more than 0.70, Sarstedt et al., 2021) determined that the reliability is satisfactory. Likewise, the AVE scores above 0.50 are considered good convergent validity. Table 4 shows the results of reliability and convergent validity testing.

Table 4 Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
Communication	0.834	0.890	0.668
Customer Retention	0.890	0.924	0.752

Construct	Cronbach's Alpha	Composite Reliability	AVE
Customer Satisfaction	0.823	0.881	0.651
Post-Purchase Dissonance	0.916	0.941	0.799
Reliability	0.753	0.843	0.574
Responsiveness	0.847	0.897	0.685

The outcomes indicated that the Cronbach's alpha values for all constructs were greater than 0.70, which is considered to be satisfactory for internal consistency reliability. Similarly, all composite reliability values exceeded the threshold value of 0.70, demonstrating strong construct reliability. Additionally, the AVE scores were between 0.574 and 0.799, exceeding the optimum value of 0.50. The results indicate that the constructs have good convergent validity. The constructs with the highest reliability and convergent validity values were the post-purchase dissonance constructs, representing a high degree of reliability among the items in each construct. The overall measurement model met the criterion of reliability and convergent validity.

Discriminant Validity

Discriminant validity involves how much a construct differs from other constructs in the model. For this study, discriminant validity was evaluated with the Heterotrait-Monotrait Ratio (HTMT). Henseler et al. (2015) suggest that values of less than 0.90 are good for the discriminant validity. Table 5 shows the result of HTMT.

Table 5 HTMT Results

Construct Pair	HTMT Value
CR ↔ COM	0.906
CS ↔ COM	0.837
CS ↔ CR	0.853
PPD ↔ COM	0.866
PPD ↔ CR	0.763
PPD ↔ CS	0.740
REL ↔ COM	0.865
REL ↔ CR	0.759
REL ↔ CS	0.832
REL ↔ PPD	0.635
RES ↔ COM	0.849
RES ↔ CR	0.777
RES ↔ CS	0.736
RES ↔ PPD	0.706
RES ↔ REL	0.912

The findings indicated that most HTMT values were below the threshold value of 0.90. However, the HTMT value between responsiveness and reliability slightly exceeded the threshold. Therefore, HTMT inference was conducted to further assess discriminant validity.

Table 6 HTMT interference

Construct Pair	Lower Bound	Upper Bound
CR ↔ COM	0.855	0.951
CS ↔ COM	0.741	0.926
CS ↔ CR	0.780	0.921

Construct Pair	Lower Bound	Upper Bound
PPD ↔ COM	0.798	0.924
PPD ↔ CR	0.702	0.814
PPD ↔ CS	0.658	0.816
REL ↔ COM	0.788	0.933
REL ↔ CR	0.673	0.837
REL ↔ CS	0.752	0.908
REL ↔ PPD	0.529	0.728
RES ↔ COM	0.782	0.912
RES ↔ CR	0.708	0.838
RES ↔ CS	0.648	0.821
RES ↔ PPD	0.621	0.779
RES ↔ REL	0.844	0.979

The HTMT inference results showed that none of the confidence intervals had a value of 1. Therefore, discriminant validity was established despite the slightly evaluated HTMT value between responsiveness and reliability. These findings confirm that the constructs included in the study were sufficiently distinct from one another.

Structural Model Assessment

Path Coefficients and Hypothesis Testing

Path coefficients were examined to determine the direction and significance of relationships among variables. The significance of the relationships was assessed using beta values, t-values, and p-values. The path coefficient results are presented in Table 7

Table 7 Path Coefficients and Hypothesis Testing

Hypothesis	Relationship	Beta	T-value	P-value	Decision
H1	REL → CR	0.082	1.354	0.176	Rejected
H2	RES → CR	0.199	3.840	0.000	Accepted
H3	COM → CR	0.588	10.824	0.000	Accepted
H4	CR → CS	0.408	5.458	0.000	Accepted
H5	REL → CS	0.280	4.363	0.000	Accepted
H6	RES → CS	-0.013	0.215	0.829	Rejected
H7	COM → CS	0.080	0.850	0.395	Rejected
H11	PPD × CR → CS	-0.039	1.228	0.220	Rejected

The outcomes showed that the communication had a significant positive effect on customer retention ($\beta = 0.588$, $p < 0.001$). Likewise, responsiveness had a significant positive association with the customer retention ($\beta = 0.199$, $p < 0.001$). Hence, H2 and H3 were supported. H4 was supported by the significant positive effect of customer retention on customer satisfaction ($\beta = 0.408$, $p < 0.001$). Reliability also had a significant positive impact on customer satisfaction ($\beta = 0.280$, $p < 0.001$), which led to the acceptance of H5. The reliability effect on customer retention was found to be insignificant ($\beta = 0.082$, $p = 0.176$) and therefore rejected H1. Similarly, responsiveness and communication did not have any significant direct effect on customer satisfaction, and thus H6 and H7 were rejected. The moderating effect of post-purchase dissonance of customer retention and customer satisfaction was also non-significant ($\beta = -0.039$, $p = 0.220$). As a result, H11 was not accepted.

Structural Model

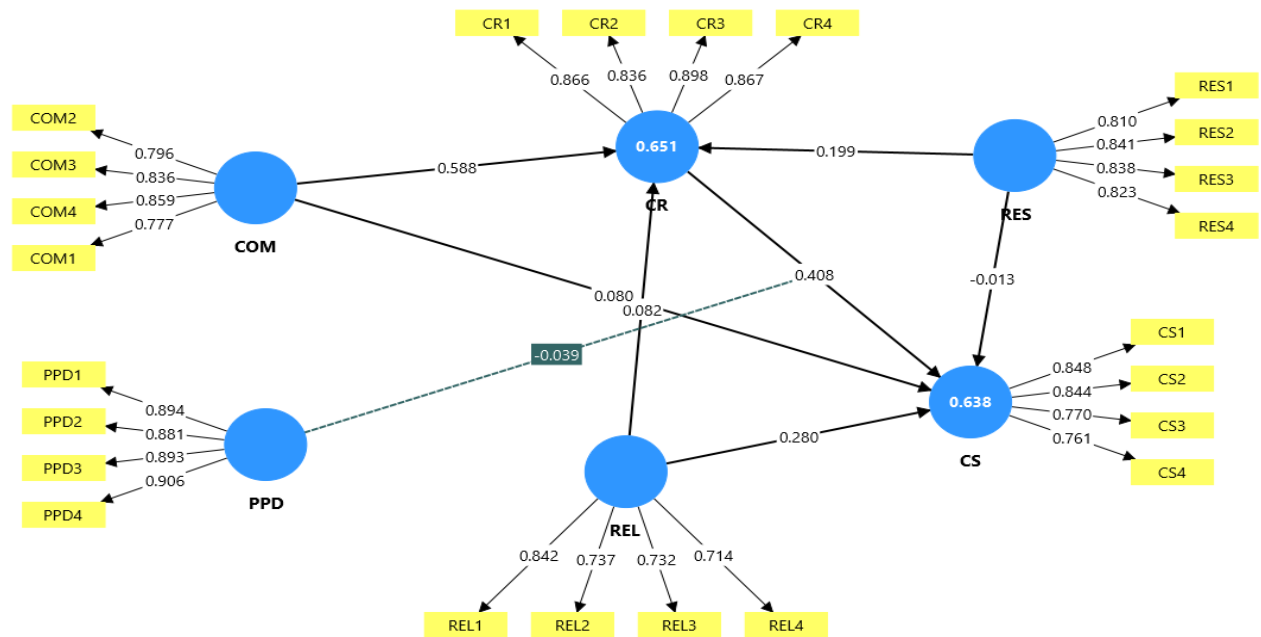


Figure 3 Structural Model

Figure 3 presents the structural model generated through SmartPLS software. The figure illustrates the relationships among communication, responsiveness, reliability, customer retention, customer satisfaction, and post-purchase dissonance

Coefficients of Determination (R^2)

The coefficient of determination (R^2) was used to measure the explanatory power of the structural model. The R^2 values explain the amount of variance in the dependent variable that is accounted for by the predictor variables. Sarstedt et al. (2021) suggest that R^2 values of 0.25, 0.50 and 0.75 are defined as weak, moderate and strong explanatory power, respectively.

Table 8 Coefficients of Determination (R^2)

Endogenous Construct	R^2	Adjusted R^2
Customer Retention	0.651	0.648
Customer Satisfaction	0.638	0.632

The findings showed that communication, responsiveness and reliability accounted for 65.1% of the variance in customer retention. Like that, customer retention, communication, responsiveness, reliability and post-purchase dissonance accounted for 63.8% of the variance in customer satisfaction. These results suggest that the proposed structural model has medium to high explanatory power.

Mediation Analysis

Mediation analysis was used to explore whether the relationship between communication, responsiveness, reliability, and customer satisfaction was mediated by customer retention. The significance of indirect effects was tested through bootstrapping.

Table 9 Mediation Analysis

Hypothesis	Indirect Relationship	Beta	T-value	P-value	Decision
H8	COM → CR → CS	0.240	4.961	0.000	Accepted
H9	REL → CR → CS	0.033	1.242	0.214	Rejected
H10	RES → CR → CS	0.081	3.179	0.001	Accepted

Results of mediation analysis showed that the relationship between communication and customer satisfaction is significantly mediated by customer retention. The indirect effect was statistically significant ($\beta = 0.240$, $p < 0.001$) and was consistent with the hypothesis H8. Similarly, customer retention significantly mediated the relationship between responsiveness and customer satisfaction ($\beta = 0.081$, $p = 0.001$), resulting in the acceptance of H10.

However, the indirect effect of reliability on customer satisfaction through customer retention was insignificant ($\beta = 0.033$, $p = 0.214$), leading to the rejection of H9. The results show that the impact on customer satisfaction is mainly in the way it improves their retention and in communicating with them.

Moderation Analysis

Moderation analysis was conducted to examine whether post-purchase dissonance moderated the relationship between customer retention and customer satisfaction. Bootstrapping procedures were used to analyze the interaction between customer retention and post-purchase dissonance.

Table 10 Moderation Analysis

Relationship	Beta	T-value	P-value	Decision
PPD × CR → CS	-0.039	1.228	0.220	Rejected

The moderation analysis did not find any significant moderation effects between customer satisfaction and customer retention on the post-purchase dissonance. There was no statistically significant interaction effect.

Hence, the results indicate that the effect of customer retention on customer satisfaction is not affected by post-purchase dissonance among e-commerce customers of Pakistan.

Summary of Hypotheses Testing

The summary of hypothesis testing is presented in Table 11

Table 11 Summary of Hypothesis

Hypothesis	Statement	Decision
H1	Reliability has a significant positive effect on customer retention	Rejected
H2	Responsiveness has a significant positive effect on customer retention	Accepted
H3	Communication has a significant positive effect on customer retention	Accepted
H4	Customer retention has a significant positive effect on customer satisfaction	Accepted
H5	Reliability has a significant positive effect on customer satisfaction	Accepted
H6	Responsiveness has a significant positive effect on customer satisfaction	Rejected

Hypothesis	Statement	Decision
H7	Communication has a significant positive effect on customer satisfaction	Rejected
H8	Customer retention mediates the relationship between communication and customer satisfaction	Accepted
H9	Customer retention mediates the relationship between reliability and customer satisfaction	Rejected
H10	Customer retention mediates the relationship between responsiveness and customer satisfaction	Accepted
H11	Post-purchase dissonance moderates the relationship between customer retention and customer satisfaction	Rejected

Discussion

To explore the effect of the major dimensions of service quality, Reliability, Responsiveness, and Communication, on Customer Satisfaction in an e-commerce environment was the main aim of this study. The study also examined the mediating effect of Customer Retention and the moderating effect of Post-Purchase Dissonance in the relationship between the independent variables and dependent variables.

The statistical findings and the results of hypothesis testing were presented in Chapter 4, but this chapter aims to interpret the findings in the context of previous theories and empirical studies. That is, this chapter aims not only to investigate if the proposed relationships are significant, but also to understand why the relationships arose and how they help to advance the understanding of consumer behavior in digital contexts.

This study gives insights into customers' experience with e-commerce platforms, which are crucial. The findings show that the dimensions of service quality do not affect the outcomes of the customers in the same way. Some dimensions directly affect the customer's satisfaction, and others mostly through their effect on the next stage of the customer's life cycle, which is customer retention. The results echo the idea that online customer evaluation is a dynamic process, rather than a one-time thing, and that it evolves as a result of repeated interactions. This view aligns with the principles of Expectation-Confirmation Theory (Oliver, 1980) that states the customers' assessments are influenced by comparing the usual expectations and experiences over time.

The structural model showed a good explanation. Out of the variance in Customer Retention, 65.1% was explained by the independent variables ($R^2 = 0.651$); and 63.8% of the variance in Customer Satisfaction was explained by the independent variables ($R^2 = 0.638$) (Table 8 Coefficients *of Determination* (R^2)). For behavioral and management studies, Sarstedt et al. (2021) suggest that R^2 values of more than 0.60 signify a significant explanatory power. These findings indicate that the proposed framework (as shown in Figure 1) is able to explain the majority of customer behaviour in the e-commerce domain.

In addition, the results of this study support the theories used in this research, such as SERVQUAL (Parasuraman et al., 1988), Expectation-Confirmation Theory (Oliver, 1980), and Cognitive Dissonance Theory (Festinger, 1957). These theories have helped to explain the impact of service-related experiences on the retention, satisfaction, and post-purchase evaluations of customers. Each hypothesis is discussed in detail in the remaining sections, with comparisons to previous empirical work, discussion of agreement/disagreement with previous studies, and theoretical and contextual explanations for the observed results.

The impacts on Customer Retention: Evaluating Direct Effects

This study aimed to examine the effect of service quality dimensions on Customer Retention, which was the first major aim of this study. Customer retention was not just viewed as a behavioural end goal, but as a continuous journey of engagement, through familiarity, convenience, and perceived value in the digital sphere.

Impact of Reliability on Customer Retention

The study revealed that there is a positive and significant relationship between the variables hypothesized: reliability and customer retention (see Table 7). Interestingly, Hypothesis 1 was rejected by the statistical analysis because it gave the results ($\beta = 0.082$, $p = 0.176$). This result is counterintuitive in the sense that the established empirical literature (as discussed) predicts the opposite result.

Trust and platform reuse/retaining rates are strongly associated with reliable service delivery (defined as timely order delivery and accurate delivery) by previous studies (e.g., Javed et al., 2021; Fang et al., 2021). Likewise, Ashfaq et al., (2020) determined that reliability was one of the key factors that influenced continuance behavior.

This result of the rejection of H1 in the current study provides a deep theoretical understanding of the changing nature of ecommerce. One explanation for this paradox is that as digital markets evolve, reliability moves from an added value differentiator to simply an expectation. In the SERVQUAL perspective, there is an expectation by the customer that the platform shall provide what was promised without mistakes. So, if something is unreliable, churn is going to happen, but if it is reliable, it doesn't automatically mean they will be retained in the long run. Reliability only gives a firm the "right to compete" in highly competitive digital environments; it can only deliver the customer to the firm with interactive, relational components.

A reliable understanding of why reliability does not lead to customer retention can be gained by considering the Kano Model of Customer Satisfaction and Herzberg's Two-Factor Theory. In the modern and competitive service setting, where technology is playing a crucial role, reliability has moved from being an "attractive quality" (a differentiator) to being a "must-be quality" or a hygiene factor (Irfan et al., 2021).

Consumers take it for granted that organisations are reliable, that delivering on basic promises is what they expect, and that it is no longer considered a coup de main but the basic condition of market entry. When customers are faced with competition, their loyalty may be short-term, provided that reliability can be complemented by relational factors like communication and responsiveness (Tandon et al., 2020). So, although reliability is a key factor, it may not be enough to foster customer loyalty.

Effect of Responsiveness on Customer Retention

Determine how responsive customer service impacts on the retention of customers. In contrast, Hypothesis 2 (See Table 11) : Responsiveness positively and significantly affects customer retention was very well supported ($\beta = 0.199$, $p = 0.000$) (see Table 7). This finding fully gives credence to the earlier study and helps to achieve the research objective on the impact of post-purchase strategies on consumers' engagement. With no face-to-face contact, responsiveness is key to retaining customers' confidence, which is achieved by quick responses and an effective complaint handling system.

The findings of the acceptance of H2 support the findings of Priyo et al. (2019), which states that the rate of the service responses were found to have a positive impact on the perceived service quality, and hence on the willingness to return to an online platform, as reported in other studies (Goutam and Gopalakrishna, 2021). Moreover, the results support Uche et al., (2021) who noted that trust is essential to maintain digital relationships through problem solving. The data corroborates that in the realm of this study, when a company responds quickly, its subjective frustration and vulnerability to the consumer are reduced, and they become “trapped” in the company's behavioral relationship (retention).

Ideally, the more responsive a company is, the higher the customer's switching costs will be. If consumers know how quickly their service provider will solve a problem, they won't be tempted to switch to a service provider that they have never done business with, but that they know will be quick to solve their problem (Wang et al., 2024). Responsiveness is a way of assuring the client that the company is engaged in the client's ongoing success, which is essential to ensuring the client's continued retention.

Role of Communication in Customer Retention

Based on the third hypothesis, Communication is significantly and positively correlated with Customer retention. The most influential factor in the model was communication, which directly influenced the model with a high coefficient of $\beta = 0.588$, $p = 0.000$ See Table 7. The potent finding can answer the research question on what service strategies are best suited to win consumer relationships. This finding was very much in support of the literature search.

Irfan et al. (2021) and Nguyen et al. (2022) suggest that by providing clear, consistent, and timely information sharing, such as order confirmations and tracking updates, it can help reduce customer uncertainty and improve customer engagement, resulting in higher customer retention. Similarly, in the past, it was found that communicating information in an open manner reduces perceived risk (Kaur et al., 2023).

Likewise, Mofokeng (2023) found that a good communication can reduce uncertainty and improve customer trust, while Zhao et al. (2022) stated that proactive communication can maintain customer relationship and boost their loyalty intention. One likely explanation for this robust connection is that communication helps keep customers up-to-date on the entire sales process. To make customers feel valued, providing information about the order, delivery, policies, and problem solving will help them feel connected to the platform. Ensuring that customers get enough information removes confusion and uncertainty, leading to better chances of them staying engaged.

So, if you will put up with H3, then you'll know that Communication is not a Support function, it is a function that has a lot of importance in retaining Customers. Good communication, whether it be clear, transparent, or consistent, can have a huge impact on the relationship with your customers and reducing customer churn for ecommerce businesses.

The relationship between mediator and dependent variable.

One big problem with the previous studies is they only assumed that satisfaction leads to retention; it doesn't go the other way around. Chapter 2 is where the one problem lies. The authors refuted this notion in this study by investigating whether repetitive interaction (Retention) affects and changes Customer Satisfaction.

From the above results, Hypothesis 4 ($\beta = 0.408$, $p = 0.000$) was empirically confirmed, which is interpreted as Customer Retention has a significant positive effect on Customer Satisfaction with

high significant level Table 7. The study is an important theoretical contribution in this regard. It shows that satisfaction is more of a dynamic than a fixed entity in the digital environment and that it is created through time and experience. The majority of the studies in the past suggested that Customer Satisfaction is a determinant of Customer Retention, with the implication that if Customer Satisfaction is increased, then the Customer Retention is increased too.

But the other story is that another coin is accepted, H4. From the results obtained, it can be concluded that customer retention can also contribute to customer satisfaction, because the longer the customer stays on the platform, they will become more familiar, more trusted and more satisfied with the platform. This result is in line with the recent empirical improvement mentioned in the literature: People's perception of value and trust would improve with repeated interactions (Li, 2022) and retention would help customers build expectations after repeated interactions (Zhao, 2023).

The continuous interactions with a platform (Retention) allows for smoother customer journey within a digital platform and reduce risk and uncertainty. This familiarity and predictability, of course, leads to improved and much more favorable assessments of the service (Satisfaction). As such, the results were able to validate the aim of the study by re-conceptualizing the relationship between retention and satisfaction. Customer retention can contribute to customer satisfaction since, over time, the organization gets to know the customer's preferences, needs, and expectations. This enables companies to offer more customized services and enhance the customer experience (Abdullah, 2023).

This implies that more of the customers will be satisfied as the organisation will provide better services to them. Therefore, it is important to note that keeping the customer is not an aim in itself, but rather an integral element of customer satisfaction. By the end of this unit, learners should be able to explain the factors that affect customer satisfaction. The study also examined the impact of the dimensions of service quality on Customer Satisfaction (H5, H6 and H7) to find out the factors that evoke evaluative responses.

The Determinants of Customer Satisfaction

The study also assessed the direct effect of the dimensions of service quality on Customer Satisfaction (H5, H6, H7) (See Table 7) to understand the factors that trigger evaluative responses.

Direct Impact of Reliability on Customer Satisfaction

Hypothesis 5 predicted that there would be a positive relationship between Reliability and Customer Satisfaction, which was supported ($\beta = 0.280$, $p = 0.000$). This lends credence to the Expectation-Confirmation Theory (ECT) that suggests that with a service that performs in line with the customer's pre-purchase expectations, the customer will form a positive evaluation of the service. The results are similar to that of study conducted by Wilson et al., (2021) and Sharif et al., (2018) which reported that reliable service is consistent in nature which enhances service credibility for satisfaction improvement.

It shows an important dilemma in ecommerce: reliability has to be a given in any exchange and it's this that this is about; it's what it does to make the customer feel good in the moment but it does not necessarily mean that the user will come back to buy more. Reliability is a component that helps lead to satisfaction but may not be enough to ensure customer retention. Consumers do not expect good service; it is assumed as a standard service. Thus, along with reliability, there are other factors that organizations should incorporate to develop more robust customer relationships and foster customer loyalty – communication and responsiveness.

Effects of Responsiveness and Communication on Satisfaction

One of the most interesting results of this study is the statistical rejection of Hypothesis 6. Based on the data, it is not possible to conclude that there is a direct significant relationship between Responsiveness and Customer Satisfaction. On first glance, it seems counterintuitive: the customer appreciates quick response to an extent that he will stay with the company (H2 accepted), why not directly make him happy? This is because in today's digital world, timely response is no longer considered as an added value service, but an integral part of the trust building process with customers (Goutam & Gopalakrishna, 2021). When the customer turns to the company, the initial effect of the company's quick response to the customer's problem is that the frustration is removed (Hossain et al., 2023).

A customer may feel it is "back to normal" and that might not be a salutary experience or a satisfactory one. The more logical explanation for the result is that Responsiveness, rather than being a "value-creating factor," is more of a "problem-solving factor." With online shopping, customers typically only experience responsiveness when things go wrong, like order delays, complaints or problems. In such cases, swift actions can resolve the issue, minimize negative emotions, and establish a base level of trust (Uche et al., 2021) however, they can't always make the entire experience better than it would be otherwise. Another is that satisfaction is typically more a function of overall service quality and consistency than of response time. The same holds true for the direct path from Communication to Customer Satisfaction which was not statistically significant and thus was rejected, indicating H7.

As we discussed in H3, the most effective method for maintaining customers is through communication, but as this result shows, pleasing conversation doesn't always compensate for functionality. However, the current study has rejected these direct paths and requires a deep theoretical contextualization. One reasonable explanation is that, in contemporary digital communication, communication and responsiveness is seen as a relational facilitator, rather than a core product. For example, the communication on a platform can be very good and very polite (H7) and the prompt response to a complaint can be very good (H6), but if the actual product that is delivered is fundamentally broken (reliability failure), the customer will not state that he/she is very happy (H7).

In this way, if the needs related to the functional role are not satisfied, then pleasant communication and quick responses cannot create satisfaction alone (Wilson et al., 2021). The main source of satisfaction is the confirmation of core service utility as proposed in the Expectation-Confirmation Theory. Responsiveness and communication, therefore, are not a direct indicator of customer satisfaction, but rather are an indirect indicator of the customer's satisfaction in the structural model, as they are designed to keep the customer satisfied enough to do more than just one thing—satisfy them, they are designed to do something much more strategic: keep the customer in the system long enough to make him or her satisfied over time. This is in line with recent empirical views that repeat interaction and sustained behavioral involvement are the real mediators that lead to high customer satisfaction in the end (Zhao et al., 2023).

The Mediating Mechanism

In the context of the above, one of the research questions was: Does behavioral engagement serve as a link between service quality and consumer evaluations? (RQ 4). This study filled a gap in the literature because of the assumption that satisfaction is an antecedent, not a byproduct, of ongoing digital interactions (H8, H9, and H10) (See table Table 9).

Mediating Role of Customer Retention

The study hypothesized that Communication will have an effect on Customer Satisfaction via Customer Retention (8). The empirical results showed that the mediation effect was highly significant and positive, $\beta = 0.240$, $p = 0.000$. Hypothesis 10, which examined the mediating effect of Customer Retention on Responsiveness and Customer Satisfaction was also supported ($\beta = 0.081$, $p = 0.001$). The direct effect of both Communication (H7) and Responsiveness (H6) on Satisfaction were rejected; therefore, the results suggest full mediation.

It is a conceptual insight of a grand scale which fits neatly with recent progress in the study of online consumer behaviour. Studies by Shao et al., (2026) and Kim and Lee (2021) were discussed in Chapter 2 that behavioral engagement is a mediating mechanism between service performance and satisfaction. This view is confirmed by the acceptance of H8 and H10. In ecommerce terms, “proactive communication and agile responsiveness” do not automatically create satisfaction; they're defensive tactics to ward off defection and retain customers. With each interaction, customers gain familiarity with the platform, develop more expectations, and feel less risk, which leads to high satisfaction levels in the long term, also known as ‘Retention’. The results support the claims of Irfan et al. (2021) and Zhao et al. (2023) that dimensions of relational service quality translate into positive evaluations of such service via retention.

Conversely, Hypothesis 9, which posited that Customer Retention mediates the relationship between Reliability and Customer Satisfaction, was statistically rejected ($\beta = 0.033$, $p = 0.214$). This rejection is mathematically and theoretically consistent with the earlier rejection of Hypothesis 1 (Reliability $\rightarrow$ Customer Retention).

Because reliability fails to structurally bind the customer to the platform, the mediational chain is broken at the first link. This finding further clarifies the unique nature of reliability within the SERVQUAL framework applied to digital environments. This shows that Reliability mainly works as a transactional factor. It creates immediate satisfaction when services are delivered correctly, as seen in H5. However, it does not strongly connect customers to the company in a long-term way, so it cannot use retention to build further satisfaction.

From a business point of view, this means companies cannot rely only on perfect service delivery for long-term success. Reliability may help in the short term, but it is not enough to secure long-term customer relationships and growth.

The Moderating Role of Post-Purchase Dissonance

The study explored the psychological intricacies of the post-purchase stage to answer the research question "why do buyers regret their ecommerce purchases?" and to fulfil the overall objective of understanding the phenomenon of buyer's regret in e-commerce. Post-Purchase Dissonance significantly weakens the relationship between Customer Retention and Customer Satisfaction was hypothesized (Hypothesis 11). Interestingly, the empirical analysis did not support this hypothesis ($\beta = -0.039$, $p = 0.220$) (See table Table 10) which suggests that the presence of postpurchase dissonance does not significantly change the relationship between retention and satisfaction. This discovery contrasts with a significant portion of the existing literature surveyed in Chapter 2 which indicated that dissonance brings doubt and hesitation, even when customers are not disengaged, into positive evaluations.

This result challenges the works of Biswakarma et al., (2025) and of Sharif and Yeoh (2018) who suggested that dissonance brings doubt and hesitation into positive evaluations even when customers are not disengaged. But if one looks through the prism of Festinger's (1957) Cognitive Dissonance Theory, this rejection could be seen as a very sound theoretical explanation for this,

especially in the context of the developing e-commerce industry in Pakistan. Under the theory, people seek to be consist from within.

If a customer has already made a decision to make a long-term commitment to a platform (Customer Retention), then it causes a lot of mental discomfort when they experience a significant negative feeling after the purchase. To ease this, highly retained customers build up a psychological cushion. They seek out positive aspects of the site and suppress negative information or slight dissonance. The empirical rejection of H11 shows that in the case of a strong behavioral bond (retention), this may serve as a protective barrier against temporary psychological anxiety.

Negative aspects of buyer's regret are overridden by the positive aspects of retained customer's familiarity with the platform and make a negligible difference on long-term satisfaction statistically. This rejection is a plausible explanation when interpreting this research from a theoretical perspective because the traditional consumer behavior literature has mainly conceptualized post purchase dissonance as a mediator instead of a moderator as was done in this research. The lack of psychometric significance of dissonance in this framework could be due to treating it as a boundary condition instead of a direct psychological intermediary.

Conclusion and Recommendations

The main purpose of the study is to investigate the impact of the three major service quality dimensions (reliability, responsiveness and communication) on customer satisfaction in the fast-growing e-commerce industry in Pakistan. In addition, the study sought to explain how customer retention intervened in the relationships between these customer outcomes and what impacts the latter had on customer outcomes. Also, the study wanted to understand how customer retention acted as a mediator in the relationship between these customer outcomes and what moderating effect did post purchase dissonance have on these customer outcomes. This section gives a detailed overview of the research methodologies and major conclusions obtained from statistical analysis. More importantly, it points to the theoretical and practical implications of the research showing how the research can be applied by academics and business managers. Last, the chapter points to the problems encountered in the research process, and offers clear guidelines for future researchers interested in studying online consumer behavior. This study examined quantitative, cross sectional and explanatory research design to meet the research objectives. The conceptual model was developed using theories of behavior such as SERVQUAL model, Expectation-Confirmation Theory and Cognitive Dissonance Theory. The target segments were active online shoppers of Pakistan who buy products from different platforms like Daraz, international platforms like Temu, Instagram and Facebook marketplaces. A structured closed-ended questionnaire was used for data collection, randomly distributed online using convenience sampling.

A final sample size of 385 valid responses was obtained, a figure which is very suitable for the purpose of revealing significant relationships in complex models. There were a large number of younger respondents with 76.4% between the ages of 18 and 35, and 49.9% of them were female. The data collected was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) Software, which was developed by SmartPLS Table 1. This approach was selected in particular due to its capacity to process complex models that include both mediation and moderation effects at the same time. The structural model has a very high level of explanatory power, with 65.1% of the variance in customer retention and 63.8% of the variance in customer satisfaction explained. Academic value judgments suggest that these values reflect a good degree of customer behavior in the digital world.

Theoretical Implications

This study has several significant contributions to the literature of consumer behavior and service marketing. First, this research is a success to break the one way flow of information used in most literature in the field of marketing. Researchers have long held the view that customer satisfaction is the key driver of customer retention, and that a customer needs to have a high level of satisfaction before they will remain loyal. This study nevertheless offers a theoretical paradigm shift by establishing that continuous behavioral engagement (retention) is a necessary condition to building stable and positive satisfaction in digital environments. This research findings reaffirm the notion that retention strongly influences satisfaction, thus confirming that online evaluation is a process that is dynamic in nature and not a single transaction outcome. Secondly, the study further contributes to the use of the SERVQUAL framework in a digital context.

The study's findings indicate that reliability is now a "hygiene factor" or a minimum market requirement, thereby offering empirical evidence that reliability has become a "market expectation". It brings the theory of service quality up to date, making a distinction between functional perfection (which gives the right to compete) and the relational aspects such as communication which must be addressed to earn the seal of loyalty. Third, this study is a unique contribution to Cognitive Dissonance Theory.

Managerial and Practical Implications

The study's implications for the business and management are very practical and action-oriented, offering a blueprint for ecommerce managers, marketers, and platform builders in Pakistan. Although the e-commerce industry has been rapidly expanding in Pakistan, it has still not been able to build consumer confidence and institutional trust. This study's findings may be useful to businesses when creating a post-purchase strategy. The Value of Reliability Manager must consider that accuracy and on-time delivery (reliability) is a must. It is essential in order to create instant transactional satisfaction. But, managers should not think of reliability as a method of fostering long-term loyalty.

Customers today are looking for a guaranteed delivery as a normal service rather than a special service, which is why companies have to do more than just be operationally flawless in order to assure sustainable business growth. To actively mitigate customer attrition and foster customer loyalty, ecommerce businesses need to make communication and responsiveness a top priority when it comes to retention. The numbers are undeniable communication is the key to retention. Platforms should therefore focus on implementing automated tracking, easy return policies, proactive delivery notifications, and follow-up emails.

Limitations of the Study

This study has been conducted in an ethical manner and carefully followed the statistical procedures, but there are some limitations which could affect the generalizability of the results. First, a cross sectional design was used in which data was gathered at one time. Consumer attitudes, retention and satisfaction are changing concepts over time making it difficult to observe the changes in these concepts in the long term using a cross sectional design. Second, it was non-probability sampling and convenience sampling method. Although this can be very efficient and popular way of collecting data from real online shoppers, the sample might not be a perfect reflection of the population of Pakistan. Third, the geographical/cultural context is a restriction. The survey was conducted with consumers in Pakistan only. Consumer behavior is also greatly shaped by local cultural values, different degrees of digital literacy, and the regulatory context of

developing markets, which could limit the extent to which these findings can be generalized to fully developed Western e-commerce markets. Lastly, self-report survey measures were used. Although the PLS-SEM analysis validated the reliability and validity of the constructs, using closed-ended questionnaires to measure more complex psychological phenomena such as post purchase dissonance can sometimes be a limitation on the depth of the human emotion.

Future Research Directions

From the empirical results and identified limitations, several potential avenues for future studies are identified. Future researchers: It is strongly recommended that future researchers should use a longitudinal research design. The researchers were able to monitor a cohort of e-commerce users over six months to a year, allowing them to see the extent of time it took for ongoing retention to become strong customer satisfaction. One possible reason why the moderation hypothesis was rejected in this study is that it was structural. Future studies should retest the model by placing post purchase dissonance as the mediator between service quality dimensions and satisfaction as traditional literature has conceptualized dissonance as a mediator. It would be beneficial to compare mediation with moderation results to gain a greater understanding of buyer's regret. The current study categorized different platforms into three groups: international platforms (e.g. Temu), local giants (e.g. Daraz), and social media stores (Facebook, Instagram). Further studies should be carried out in a multi-group comparison approach between the impact of service quality on B2C and C2C, structured platforms (such as Daraz) and informal platforms (such as Instagram stores) respectively. Future Models: Other moderating variables, such as "product category," could be incorporated in future models. It would be interesting to see if the link between service quality and satisfaction would differ if the product was high-involvement (such as electronics) or low-involvement (such as household items).

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