

The Effect of E-Service Quality, E-Customer Satisfaction, and E-Customer Trust on E-Customer Loyalty in Telecommunication Sector of Pakistan

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ARTICLE INFO			ABSTRACT
Article History:			<i>This study seeks on the way to identify the effects of e-service quality on e-customer loyalty via e-customer satisfaction and e-customer trust in Pakistan's Telecommunication sector. This study aims to discover the relations among e-service quality, e-customer satisfaction, and e-customer trust, all of which play an important role in attaining e-Customer Loyalty. “Reciprocity theory” is used for giving theoretical support to the conceptual framework. The research was done by first collecting data through an online inspection by using Google Form. A total of 500 forms were forwarded to the students of different colleges and universities from different parts of Punjab, Pakistan. Total 312 complete responses were collected back. For analysis SPSS-20 and AMOS23 were used as statistical tools. According to the research findings, e-customer satisfaction and e-customer trust are intermediaries between e-service quality and e-customer loyalty and are connected to the e-service quality of Pakistan's telecommunication service sector. According to the findings, firms should advance the quality of their services in a direction to attain e-customer satisfaction, trust, and loyalty. The investigation approach is ideal for firms in Pakistan's mobile telecommunications service sector, as evidenced by the considerable relationships between the variables. Future work should encompass a diversity of product segments and/or different businesses on the way to ensure that the dimension works equally well across a number of product categories and/or sectors. The dimension may need to be changed in further industries. Changed approaches, such as focus clusters and meetings, could be used in upcoming studies.</i>
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Introduction

Previous study has shown that e-customer loyalty has increased significantly in the present retail scene, particularly in light of the obstacles created by the Covid-19 epidemic (e.g., Frasquet et al., 2024; Hu et al., 2022; Punjani et al., 2024; Rodríguez et al., 2020). Although the business community recognizes that customer loyalty has benefits like higher sales, improved operational efficiency, and a competitive advantage (Valmohammadi et al., 2023), it is important to acknowledge that loyalty is a concept that needs more research to gain a more thorough understanding (Mulia et al., 2021).

Customer loyalty is defined as a person who consistently buys the company's goods, interacts with the business often, and consistently adheres to all of its offerings (Pebriyanti and Sardanto, 2025). Additionally, the ability of the business to provide quality service results in customer loyalty, contentment, and a favorable reputation (Hariyadi et al., 2023). Elfahmi (2021) asserts that brand loyalty is ingrained in consumer thought since it results in a favorable attitude towards the brand, a desire to repurchase goods or services, and even a recommendation to others. According to Hatem et al. (2025), there are six phases of loyalty: suspicion, prospect, customer, client, advocates, and partners. According to Nengsih et al. (2024), customer loyalty elements include emotional branding, trust, contentment, and past interactions with the business. All businesses must keep their customers loyal in order to reap the benefits and ensure their continued existence (Arslan, 2020).

E-satisfaction, as defined by Oktarini dan Wardana (2018), is the degree of satisfaction or discontent that occurs from a person contrasting the performance of a product or the outcomes they see with their expectations. Customer happiness with online involvements, such as search and payment activities in e-commerce, is measured by e-satisfaction (Mariam & Ramli, 2023; Novarian & Ramli, 2020; Riyadi et al., 2023). E-satisfaction is the term used to describe how satisfied clients are with their connected acquisitions since they save time and effort compared to in-store buying (Diatmono et al., 2020; Imran & Ramli, 2019). According to these experts' opinions, e-satisfaction is a measure of how satisfied customers are with their online shopping experience, including an analysis of perceived performance and expectations of the product or service. It is impacted by the quality of online platform services and website features, which in turn affects future customer decisions and purchases. According to Karono and Halilah (2018), e-loyalty is the desire of customers to visit the website, indicating their interest in the business and likelihood of making further purchases. E-loyalty is the term used to describe customer loyalty to e-commerce platforms where the internet serves as the primary channel and where customers are devoted to buying without searching for alternatives (Ramli, 2019; Ramli et al., 2020; Salmah et al., 2021; Takaya et al., 2020).

Numerous factors have been identified by prior research as predictors of e-loyalty, such as the quality of mobile applications (Kaur et al., 2023), websites (Naim et al., 2020), and e-services (Hansopaheluwakan, 2021). These studies demonstrate a helpful connection between these antecedents and customer satisfaction, which influences e-loyalty. According to the Unified Theory of Acceptance and Use of Technology, technology adoption, particularly online purchase behavior and loyalty, is influenced by performance alternatives, effort requirements, social impact, and favorable circumstances (Rehman et al., 2022). Additionally, e-trust is crucial for building relationships with customers and fostering loyalty, particularly in online environments where perceived risks are higher (Ramanathan et al., 2022).

The increase of a website's capacity to efficiently and successfully support buying, purchasing, and delivery operations is known as e-service quality (Budiman et al., 2020). As service quality

improves, so does customer contentment, and developed heights of satisfaction result in better consumer behavior (Santos et al., 2020). Research on the link between e-service quality and e-customer loyalty stated that e-service quality has a significant impression on e-customer loyalty (Khan et al., 2019; Pasaribu, 2023); this is consistent with research that e-service quality has a significant impact on e-loyalty (Khalayleh & Al-Hawary, 2022; Mulkan et al., 2023). Similar conclusions were also drawn from studies (Puspitayanti et al., 2023; Okon & Etuk, 2024; Oktaviali et al., 2024; Widayanti & Alam, 2024) that found a strong association between e-service quality and e-customer loyalty, with greater e-customer loyalty being associated with higher e-service quality.

Through quick, safe, and individualized service, e-service quality increases consumer loyalty (Karim et al., 2023). This is particularly true for mobile-first platforms like TikTok Shop. When making purchases in virtual settings, e-trust is crucial (Al-dweeri et al., 2019). According to Hapsari and Setyawan (2023), the e-trust notion encompasses customer expectations about the dependability and credibility of service providers in keeping their promises. According to Avania and Widodo (2022), trust is the willingness of customers to make purchases online because they have optimistic expectations for their future purchasing habits. According to Berliana al. (2022), integrity (honesty), security, privacy, prepayment, and dependability were among the e-trust markers. One of the main reasons for failure in the Internet environment is that consumers have less faith in electronic channels (Liani & Yusuf, 2021). The intention of this investigation is to investigate the effect of e-service quality, e-customer satisfaction, e-customer trust on e-customer loyalty in Telecommunication sector of Pakistan.

Literature Review

Reciprocity Theory

In contemporary culture, many people are not concerned with generosity, but rather selfishness (Basha et al., 2015). The above-mentioned issue is generally best explained using the notion of reciprocity. The concept started in 1974, when Phillip Kunz, a sociologist, experimented (Kunz and Woolcott, 1976). He mailed handcrafted Christmas cards to over 600 randomly selected people, accompanied with a family picture and a letter (Seggar and Kunz, 1972). A response or two trickled in after a while. Kunz's letter generated almost 200 replies. However, why would someone reply to someone they also don't know? This often happens as a part of a quid pro quo (Kunz, 1969). Kunz's recent generosity, such as the vacation card, encouraged many to return the favor (Bolton and Ockenfels, 2000; Cox, 2004; Dufwenberg and Kirchsteiger, 2004; Falk and Fischbacher, 2006; Gouldner, 1960). The outcome shows that some people will help a stranger if the favor is in their best interest, even if the stranger is a total stranger (Shamsudin et al., 2018). To be honest, this applies to commercial relations, too. If an employee or seller is courteous and nice to their customers, and they offer a gift or quality, the consumer will generally return the favor by becoming a more loyal and satisfied client (Shamsudin et al., 2018). If others feel that you're about to retaliate in kind, they'll expect something bad from you.

Conceptualization of Variables

The conceptualization of the framework refers to the definitions of all the variables. The author's name and main definition of the variables were mention in the below given Table 1.

Table 1: Conceptualization of Variables

Constructs	Definition	Author' Name
E-Service Quality	The service's general quality or supremacy. Website layout, customer service, confidentiality/safety, and fulfilment were the four aspects used to judge the quality of e-services.	Zeithaml (2000)
E-Customer Satisfaction	Customer's personal post-purchase overall evaluation of pleasure with the cellular service provider and viewing it as a cumulative experience.	Edward and Sahadev, (2011)
E-Customer Trust	Customer trust is based on the client's opinion of the cellular service provider's integrity, dependability, accountability, and goals.	Smith (1997)
E-Customer Loyalty	Recurring purchases (next-use) combined with repatronizing a chosen cellular service provider and being prepared to suggest that provider's offerings to friends and family.	Karjaluoto et al., (2012)
Reciprocity theory	Reciprocity is the practice of rewarding good deeds and punishing bad ones. In addition to considering the outcomes of an action, the theory also considers the motive behind it when determining its kindness.	Armin Falk and Urs Fischbacher, (1998)

E-Service Quality and E-Customer Satisfaction

The current world's dynamics have altered due to the use of online social networks and e-commerce websites (Anastasiei et al., 2023), and as a result, the importance of E-SQ has also significantly risen. Because e-government services have a direct influence on public happiness, their quality will decide how satisfied citizens are (Alkraihi and Ameen, 2022). Additionally, Candiwan and Wibisono (2021) claimed that customer loyalty and satisfaction are completely and significantly impacted by the quality of e-services. According to Wijaya et al. (2018), enhancing website quality might lead to higher customer satisfaction by establishing a link between website quality and trust. Customer satisfaction is crucial for providing high-quality e-services in an e-commerce environment (Ighomereho et al., 2022). According to earlier studies, an online retailer's ability to provide high-quality e-services has a big influence on how satisfied its customers are with their purchases (Rita et al., 2019). The importance of e-service quality in achieving customer e-satisfaction has been reaffirmed in recent research conducted in Pakistan (Khan et al., 2020, Khan et al., 2023). Earlier investigations confirmed that e-service quality has helpful impression on e-customer satisfaction (Bhattacharya and Mulay, 2024; Ahmad et al., 2025; Nafisah and Istanti, 2025; Tedjakusuma et al., 2025; Nikzat and Hosseinzade, 2025; Sembiring, 2025).

H1: E-Service Quality has helpful impact on E-Customer Satisfaction.

E-Service Quality and E-Customer Trust

In online commerce, trust is crucial since online purchase carries a higher risk than traditional retail, thus a website's quality will have a large impact. The findings of various e-commerce research (Cahyono, 2015; Purnamasari, 2018; Susanti et al. 2018; Wijaya et al. 2018) further

support this, showing that consumer trust is impacted by the quality of e-services. Earlier investigations verified that e-service quality has helpful influence on e-customer trust (Ashiq and Hussain, 2024; O'Connor and Assaker, 2024; Qatawneh et al., 2024; Kasfunnuri et al., 2025; Halim et al., 2025; Sunyoto et al., 2025).

H2: E-Service Quality has helpful impact on E-Customer Trust.

E-Customer Satisfaction and E-Customer Loyalty

Prior studies have shown that e-loyalty is favorably impacted by e-satisfaction (Khristianto and Suyadi, 2021; Khan et al., 2019; Kaya et al., 2019; Ashiq and Hussain, 2024; Bhattacharya and Mulay, 2024; Rohwiyati et al., 2024; Gazi et al., 2025). E-customer loyalty and e-customer satisfaction have been shown to be positively and significantly correlated by early research (Maulana, 2016). Since the phenomenon denoted to as electronic service quality, or e-service quality, has grown to be a significant component of online business operations, entrepreneurs must carefully consider their e-service quality strategies. According to Marjoni et al. (2015), client satisfaction and loyalty are impacted by the caliber of electronic services. According to Marjoni et al. (2015), the e-satisfaction variable may function as a mediator between e-loyalty and e-service quality.

H3: E-Customer Satisfaction has positive impact on E-Customer Loyalty.

E-Customer Trust and E-Customer Loyalty

Customers' e-loyalty is mostly driven by their trust in websites and apps (Anser et al., 2021). According to earlier studies, e-trust and e-loyalty have a strong positive correlation (Al-Dweeri et al., 2017; Anser et al., 2021; Juwaini et al., 2022). The results of these research provide credence to the idea that a higher degree of trust might lead to a rise in consumer e-loyalty. Businesses gain from higher sales and advocacy when consumers feel satisfied with online platforms, which may have a favorable consequence on their e-loyalty (Juwaini et al., 2022).

H4: E-Customer Trust has positive impact on E-Customer Loyalty.

E-Customer Satisfaction mediate the association among E-Service Quality and E-Customer Loyalty

In the banking industry, Arshad Khan and Alhumoudi (2022) found that the association between SQ and client retention is mediated by CS. Overall, improvements in CS lead to significant enhancements in CL, establishing a critical relationship in the business landscape. The association between e-service quality and e-customer loyalty is significantly mediated by e-customer satisfaction (Sefnedi & Wiry, 2022; Suzana et al., 2022; Refdi et al., 2023; Sulhan et al., 2023; Hafidz & Ali, 2024), e-customer satisfaction has an important inspiration as a mediating variable between e-promotion and e-customer loyalty (Meitiana & Sembhodo, 2022; Arif & Yulianti, 2023; Harijanto et al., 2023; Ing & Dahlan, 2023; Vemberain & Rakhman, 2024). Earlier investigation confirmed that customer satisfaction positively mediate the impact of service quality towards customer loyalty (Vemberain and Rakhman, 2024).

H5: E-Customer Satisfaction positively mediate the impact of E-Service Quality on E-Customer Loyalty.

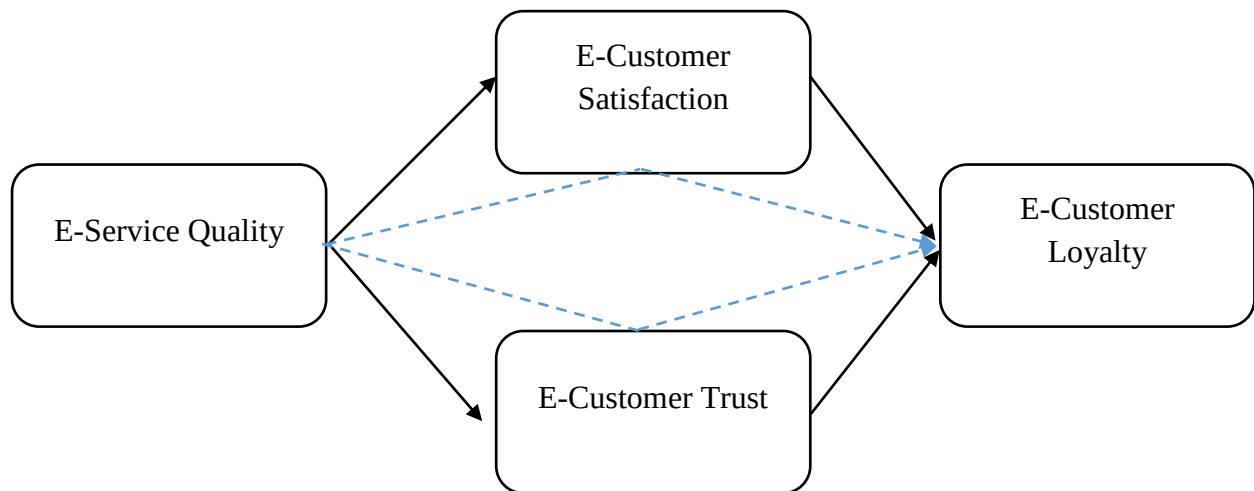
E-Customer Trust mediate the Relationship between E-Service Quality and E-Customer Loyalty

According to the investigation reviewed above (see, for example, Yen and Lu, 2008; Ghane et al., 2011; Kundu and Datta, 2015; Kassim and Asiah, 2010), e-service quality, e-trust, e-satisfaction,

and e-loyalty are all directly related. Each of these elements is connected to the others. The link between the parameters of e-service quality and e-satisfaction between online bankers was also shown to be somewhat mediated by e-trust (Kundu and Datta, 2015). In earlier findings customer trust positively mediates the impression of service quality on customer loyalty (Alnaim et al., 2022; Qatawneh et al., 2024; Agritika et al., 2024; Yumarnis et al., 2025).

H6: E-Customer Trust positively mediate the impact of E-Service Quality on E-Customer Loyalty.

Figure 1: Framework



Research Methodology

Research Design

One popular technique in quantitative research is object quantification. Numerous approaches and processes are evaluated via the use of quantification. This feature greatly increased the reliability of quantitative research. Additionally, the quantitative method reduces the researcher's risk of bias. This guarantees the findings' accuracy, dependability, and generalizability (Bryman and Bell, 2007; Zikmund, 2003). The quantitative technique is being used in this research due to its greater degree of generalizability. According to Sekaran and Bougie (2016), research design outlines the methods for gathering and analyzing data in order to identify solutions to issues. The study has used seven-point Likert scale to gather responses as a widely used tool in marketing and social sciences studies (Garland, 1991). Population of this study consist of student both university and college level, using cellular services in Pakistan. Cellular services provide prepaid and postpaid services to their customers. Of the total users, 97% users are getting prepaid services (Butt, 2015).

Data Collection

The purpose of the investigation is to assess the consequence of e-Service Quality on the e-Customer Satisfaction, e-Customer Trust, and e-Customer Loyalty in the Telecommunication sector of Pakistan in young college and university students. Sample was collected from 500 students of different levels like college and university students from Punjab province. The data collected was from different strata. The data collected from students using stratified sampling technique. The data was collected from both, male and female students. Age of respondents lies between 16 to 20, 21 to 25, 26 to 30, 31 to 35 and 36 and above. The level of education of the respondents was intermediate, graduation, masters or any other university level degree.

It is not possible to collect data from each element of the population so the sample is used for data collection to examine the whole population (Cavana et al., 2001; Sekaran and Bougie, 2016). So, the study used subset of population as sample for data collection. This study defines sampling size

with the help of a stratified disproportionate sampling technique. Pakistan consists of four subgroups which are Punjab, Sindh, Baluchistan, and KPK with distinct cultural diversity (Shah and Amjad, 2011). Hence, a stratified sampling technique is used for calculating the sample size from different districts of Punjab province, Pakistan. Pakistan cellular service subscriber base is divided into unequal proportions into the districts of Punjab province as stratum is further defined on a disproportionate basis.

Instrument Development

A research survey is designed to gather information for empirical study. The researcher used a two-part Questionnaire: the first one is known as the nominal scale and the second one is a seven-point Likert scale. The first part of the questionnaire contains the information about demographics of respondents. The second part contains construct related questions. The measurement items of e-SQ, e-CS, e-CT, and e-CL are adopted from the scales settled by (Blut 2016; Edward and Sahadev, 2011; Smith 1997; Karjaluoto et al., 2012) respectively. The language used in the questionnaire is English to achieve appropriate results.

Data Analysis Tools

Data analysis of the study is done in different sections. The first section comprises of parametric tests such as demographics analysis of characteristics of cellular service users and descriptive analysis, using SPSS Version 20. The next section consists of non-parametric tests such as model evaluation based on structural equation modeling. This investigation used Structural Equation Modeling (SEM) using AMOS-23 version for model evaluation.

Data Analysis

Demographics

The assessment offers two choices for gender. One is a man, while the other is a female. Male respondents make up 79.5% of the total, while female respondents make up 20.5%. The respondents were also asked to describe their age in the questionnaire. 22.1% of respondents are from 16 to 20, 51.6% are from 21 to 25. 25.3 belong 26 to 30 age group, and the rest 1% are from 31 to 35. The majority of the respondents have done Graduation which is 42.9%, Intermediate have 24%, Masters have 28.2%, and others have 1.9% while Ph.D. has 2.9%. The network detail of each respondent was given. As per researchers' knowledge, there were 4 common cellular network providers which were Jazz/Warid, Telenor, Ufone, and Zong. 34.9% of respondents were using Jazz/Warid, 23.1% were using Telenor, 19.2% were using Ufone and 22.8% were using Zong services. The respondents are asked to share their experience of network usage. They had different experiences. 5.1% of respondents were using service for the last 10years or more, 22.8% were using from 5years or more, 16.3% were using for less than a year and 55.8% were using cellular service for more than a year.

Table 2: Demographics Profile

Gender	Frequency	Percentage
Female	64	20.5
Male	248	79.5
Age	Frequency	Percentage
16 to 20	69	22.1
21 to 25	161	51.6
26 to 30	79	25.3
31 to 35	3	1.0

Qualification	Frequency	Percentage
Graduation	134	42.9
Intermediate	75	24.0
Masters	88	28.2
Others	6	1.9
Ph.D.	9	2.9
Network	Frequency	Percentage
Jazz/Warid	109	34.9
Telenor	72	23.1
Ufone	60	19.2
Zong	71	22.8
Experience	Frequency	Percentage
10years or more	16	5.1
5years or more	71	22.8
Less than a year	51	16.3
More than a year	174	55.8
Total	312	100.0

Reliability Analysis

This study relies on a scale known as the Likert scale; therefore, Cronbach's Alpha is utilizing here which is the most reasonable test for testing the unwavering quality of measure. The Cronbach's Alpha reliability of the independent variable (e-Service Quality) is .902 while the reliability of mediating variables (e-Customer Satisfaction) and (e-Customer Trust) is given as .933 and .939 respectively. The reliability of the dependent variable (e-Customer Loyalty) is .913 is shown in given below Table 4.7.

Table 3: Reliability Analysis

Variable Types	Variable Names	No. of Items	Cronbach's Alpha
Independent Variable	e-Service Quality (e-SQ)	03	.902
Mediating Variables	e-Customer Satisfaction (e-CS)	03	.933
	e-Customer Trust (e-CT)	05	.939
Dependent Variable	e-Customer Loyalty (e-CL)	05	.913

Descriptive Analysis

Although the standard deviation figure helps to explain variations from the average location, the mean value shows the center tendency of respondents' answers; it shows where the average responses are placed. It only alerts the user of outliers that may affect the data. A mean number greater than three suggests that participants are more likely to agree, while a mean value less than three suggests that participants are more likely to disagree.

Table 4: Descriptive Analysis

Items	N	Mean	Std. Deviation	Minimum	Maximum
eSQ1	312	3.82	1.106	1	5
eSQ2	312	3.92	1.114	1	5
eSQ3	312	3.82	1.093	1	5
eCS1	312	3.78	1.144	1	5
eCS2	312	3.86	1.051	1	5

eCS3	312	3.87	1.082	1	5
eCT1	312	3.88	1.048	1	5
eCT2	312	3.94	1.077	1	5
eCT3	312	3.89	1.082	1	5
eCT4	312	3.91	1.082	1	5
eCT5	312	3.88	1.048	1	5
eCL1	312	3.85	1.049	1	5
eCL2	312	3.92	1.042	1	5
eCL3	312	3.89	1.027	1	5
eCL4	312	3.80	1.116	1	5
eCL5	312	3.97	1.001	1	5
Valid N	312				

Correlation Analysis

The correlation findings indicate the presence and strength of a relationship between two variables. The degree of association among two variables is indicated by the correlation value. The relationship between the variables is ascertained using the Pearson product-moment correlation. Correlations between -1 and +1 are allowed. Cohen et al. (2014) state that a correlation between 0.10 and 0.29 indicates a weaker or lower connection, a association between 0.30 and 0.49 specifies a moderate relationship, and a link between 0.5 and 0.8 indicates a significant correlation. However, the error of multi-collinearity is shown if the correlation value is more than 0.80. The correlation results of the variable show a correlation between e- Service Quality and e-Customer Satisfaction is .679**. The Pearson correlation between e-SQ and e-CT is .712** while the link between e-CS and e-CT is stated as .648**. While the association between e-CL and e-SQ is .704**, between e-CL and e-CS correlation is .691** and the link among e-CL and e-CT is stated as .769** as shown in the table. All the values of Pearson correlation lie between 0.5 to 0.8 which indicates all the variables have a strong significant correlation.

Table 5: Correlation Matrix

Pearson Correlation	e-SQ	e-CS	e-CT	e-CL
E-Service Quality	(.902)			
E-Customer Satisfaction	.679**	(.933)		
E-Customer Trust	.712**	.648**	(.939)	
E-Customer Loyalty	.704**	.691**	.769**	(.913)

Full Measurement Confirmatory Factor Analysis (CFA)

Toward assessing the fitness of the dimension model for the concept, a Confirmatory Factor Analysis was used. AMOS 23 employed CFA via Structural Equation Modeling. AMOS was used as an alternative to SPSS's lack of CFA capabilities, yet SPSS offers Exploratory Factor Analysis (EFA). The CFA is used on all four scales because all of the scales comprise 16 elements. CFA was chosen instead of EFA because the latter has not been extensively studied. Although many fit indices have been published for structural equation modelling, only four essential fit indices have been suggested by(Schreiber et al., 2006), which are χ^2 , CFI, RMSEA, GFI, TLI, and CMIN/DF. These indices were utilized in this work to assess the SEM measuring model (CFA) since these indices have been used in prior publications. These threshold values are recommended by (Byrne, 2010; Kline, 2011). AMOS-23 was used to analyze the model in the CFA. Chi-square = 470.7 (p-

value <0.00) with degrees of freedom 98, the goodness of fit indices CMIN/DF= 2.06 (must be < 3), TLI= 0.898 (must be ≥ 0.95 ; Schreiber et al., 2006), CFI=0.97 (must be ≥ 0.95 ; Schreiber et al., 2006), GFI= 0.930 (≥ 0.95 ; Schreiber et al., 2006), RMSEA= 0.049 (must be <0.06 to 0.08; Schreiber et al., 2006). All the values improved, however, TLI and GFI remained below 0.95 although fit indices all approached the acceptable threshold, as reported by (Schreiber et al., 2006). All regression weights were positive and greater than 0.5.

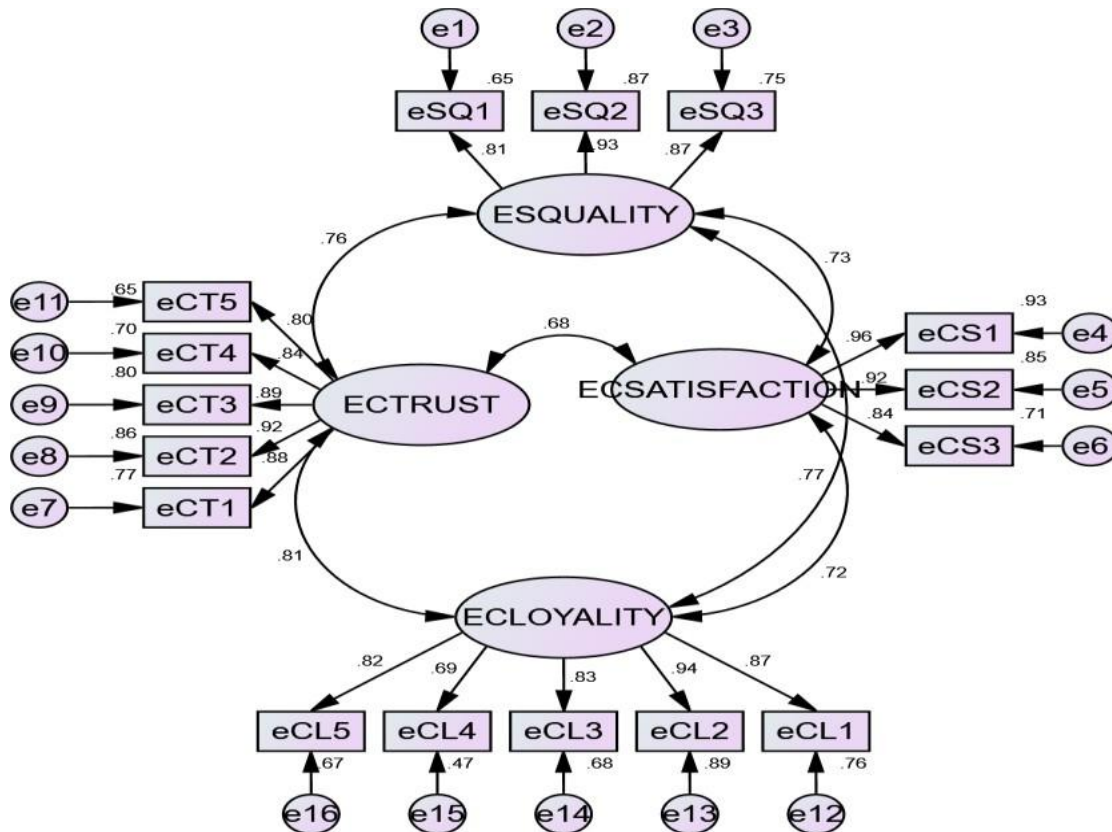


Figure 2: Structural Path Modeling for e-Service Quality, e-Customer Satisfaction and e-Customer Loyalty

H5 find the mediation between exogenous variable and endogenous variable. To find is there any mediation, partial or full exist in the paths. Researcher has used SEM analysis to inspect the mediating role of e-Customer Satisfaction. The results show a good model fit $\chi^2 = 233.3$, $df = 41$, $p < .000$, $\chi^2/df = 3.5$, CFI = .94, GFI = .92, TLI = .979, NFI = .92 and RMSEA = .053 and full support to Hypothesis5. All standardized regression weights meet the threshold value > 0.5 . The regression weights of entire paths have significant p value.

The standardized coefficient between direct path e-Service Quality and e-Customer Satisfaction is significant ($\beta = .73$; $p < .000$). E-Customer Satisfaction and e-Customer Loyalty has a beta coefficient ($\beta = .34$, $p < .000$). Likewise, e-Service Quality has a positive correlation ($R^2 = .53$; $p < .000$) with a variance of 53%. As well as, squared various connections among e-Customer Satisfaction to e-Customer Loyalty ($R^2 = .65$; $p < .000$) with a variance of 65 % for e-Customer Loyalty. The full structural model revealed e-Customer Satisfaction mediates the association of e-Service Quality and e-Customer Loyalty. Therefore, hypothesis H5 is proved.

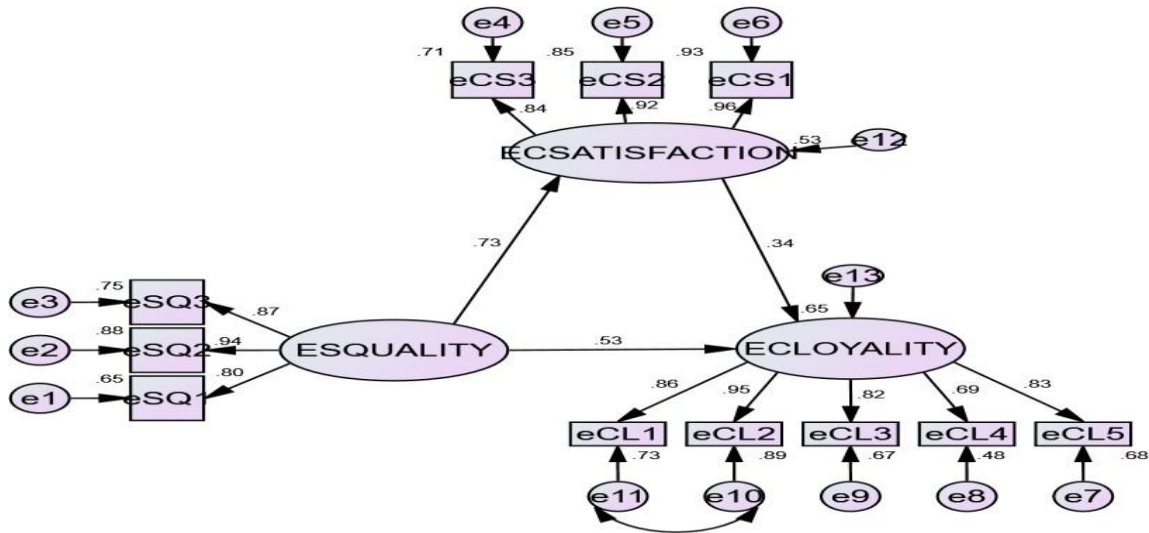


Figure 3: Structural Path Modeling for e-Service Quality, e-Customer Trust and e-Customer Loyalty

H6 find the mediation between exogenous variable and endogenous variable. Researcher has used SEM analysis to inspect the mediating role of e-Customer Trust. The consequences show a good model fit $\chi^2 = 289.2$, $df = 62$, $p < .000$, $\chi^2/df = 4.2$, $CFI = .94$, $GFI = .92$, $TLI = .91$, $NFI = .89$ and $RMSEA = .056$ and full maintenance to hypothesis H6.

The standard deviation of the straightforward path coefficient e-Service Quality and e-Customer Trust was significant ($\beta = .76$; $p < .000$). E-Customer Trust and e-Customer Loyalty has a beta coefficient ($\beta = .53$, $p < .000$). Likewise, e-Service Quality to e-Customer Trust has a positive correlation ($R^2 = .58$; $p < .000$) with a variance of 58%. As well as, squared various connections among e-Customer Trust to e-Customer Loyalty ($R^2 = .72$; $p < .000$) with a variance of 72 % for e-Customer Loyalty. The full structural model revealed e-Customer Trust mediates the association of e-Service Quality to e-Customer Loyalty. Therefore, hypothesis H6 was proved. The structural model fit diagram for H6 is shown in Figure 4.13.

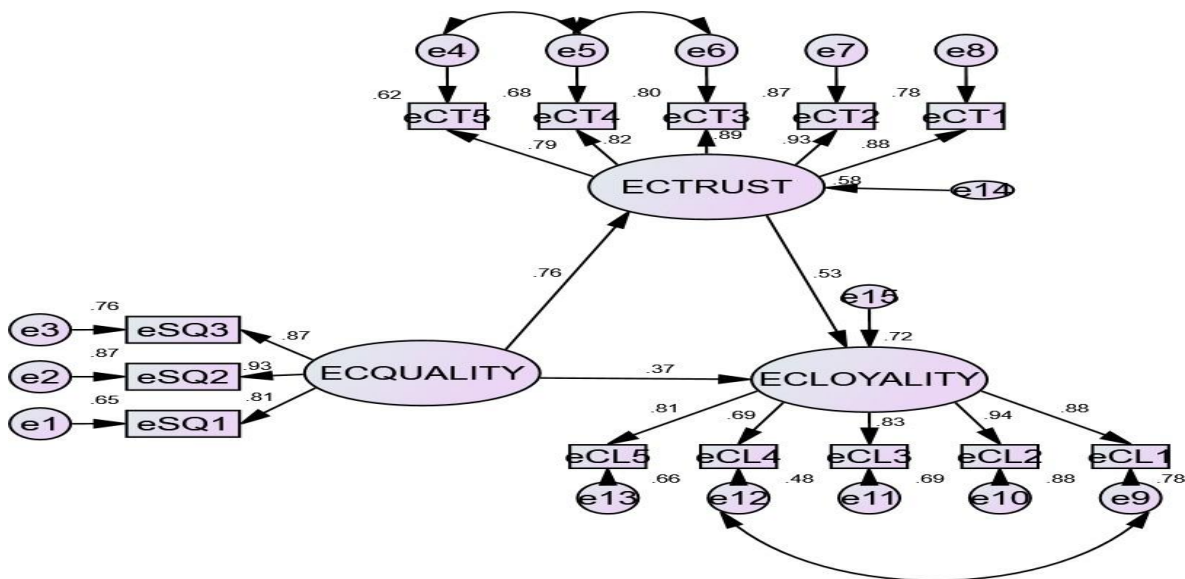


Figure 4: Structural Path Model for e-SQ, e-CT and e-CL

Table 6: Mediation Analysis

Path	Direct Effect (Estimates)	P-value	Indirect Effect (Estimates)	P-value	Results
E-SQ□E-CS□E-CL	0.73	<.000	0.34	<.000	Positively significant
E-SQ□E-CT□E-CL	0.76	<.000	0.53	<.000	Positively significant

Full Structural Model

Basic and major mediating effects are shown in the whole structural model. The chart that is currently shown in the AMOS path builder is seen lower standardized regression standards on signs and trails indicate important values. Model Fit: fit $\chi^2 = 848.829$; $df = 414$; $p < .000$; $\chi^2/df = 2.050$; CFI = .87; GFI=.83; NFI=.84; TLI=.85and RMSEA=.06. All the relationships tested were found positively significant. All the mediating and direct paths are drawn in the full model given below in Figure 4.14.

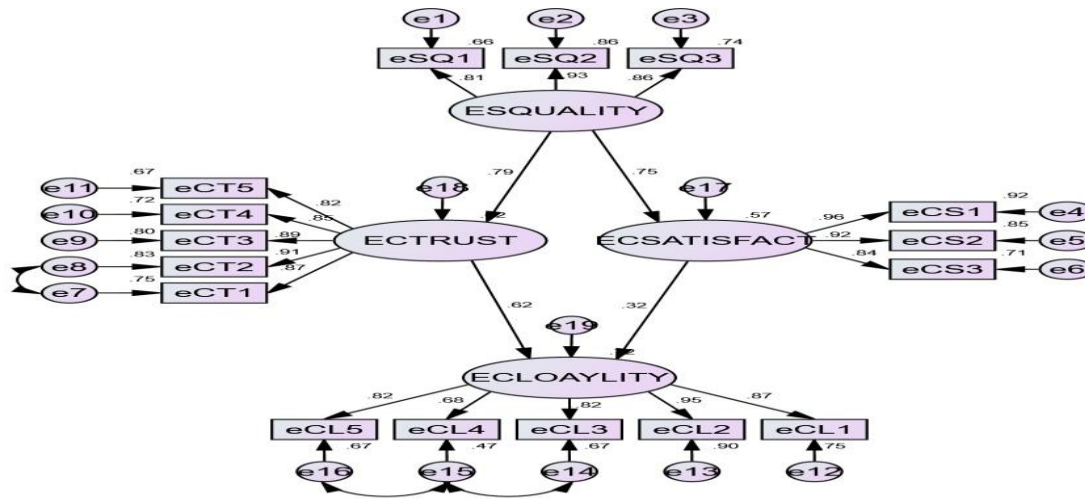


Figure 5: Full Path Model

Table 7: Results of Hypothesis

Hypothesis No.	Paths	Estimate	Results
H1	E-SQ□E-CS	.73	Positively Significant
H2	E-SQ□E-CT	.76	Positively Significant
H3	E-CS□E-CL	.72	Positively Significant
H4	E-CT□E-CL	.81	Positively Significant
H5	E-SQ□E-CS□E-CL	.73	Positively Significant
H6	E-SQ□E-CT□E-CL	.76	Positively Significant

Discussions

E-service quality has optimistic control on e-customer satisfaction. Earlier investigations confirmed that service quality has helpful control on customer satisfaction (Rita et al., 2019; Rahmawaty et al., 2021; Agritika and Suharjo, 2024; Ashiq, R., & Hussain, 2024; Sembring, 2025;

Tantiana and Hanartyo, 2025). E-service quality has helpful impression on e-customer trust. Previous researches show that service quality has substantial effect on customer trust (Yumarnis et al., 2025; Akmal and Thamrin, 2025; Agritika and Suharjo, 2024; Nafisah and Albari, 2024). E-customer satisfaction has helpful influence on e-customer loyalty. Prior findings verified that customer satisfaction has helpful association with customer loyalty (Naufal et al., 2024; Ekasari et al., 2024; Agritika and Suharjo, 2024; Julika et al., 2024). E-customer trust has supportive inspiration on e-customer loyalty. Previous discoveries confirmed that customer trust has helpful link with customer loyalty (Agritika and Suharjo, 2024; Kuska et al., 2024; Sudirjo et al., 2024; Yumarnis et al., 2025). Customer satisfaction positively mediate the influence of e-service quality on customer loyalty. Previous investigations confirmed that customer satisfaction positively mediate in the influence of service quality on customer loyalty (Nurhani and Harsono, 2024; Putri and Prianthara, 2024; Utami et al., 2024; Qatawneh et al., 2024; Hafidz and Ali, 2024). Customer trust positively mediate the encouragement of e-service quality on customer loyalty. Earlier inquiries established that customer trust completely mediate in the encouragement of service quality on customer loyalty (Qatawneh et al., 2024; Kuska et al., 2024; Yumarnis et al., 2025; Chmeis and Zaiter, 2024; Aqabneh, 2025).

Academic Contributions

The commitment of the research will first be decided by developing the conceptual framework. The conceptual framework includes e-Customer Satisfaction, e-Service Quality, and e-Customer Loyalty, which acts as an intermediary between e-Customer Loyalty and e-Service Quality. Second, using SPSS-20 and AMOS-23 software, the suggested framework was tested using factor analysis, namely exploratory and confirmatory factor analysis. It was a novel addition to the literature in this way. Third, recruited the population from Pakistan's young people. As a result, research data was gathered from the younger academic students in Punjab, Pakistan. As a result, the framework was analyzed to determine the desired outcome of the proposed study. Following that, exploring the research framework and collecting data from Pakistani college and university students made a valuable contribution to online research literature. As a result, the study stands out from the crowd. This kind of study focuses on Customer Satisfaction, Trust, and Loyalty. It, therefore, helps to set the foundations of future research on this issue, which is focused on Trust, and Loyalty for the e-Customers.

Practical Contributions

First, the study's conclusions highlight how improved e-service quality greatly raises e-customer satisfaction, which has substantial practical implications for Pakistan's telecom industry. By making investments in user-friendly digital platforms, guaranteeing prompt and effective customer care, and upholding service security and dependability across online channels, telecom businesses may take advantage of this knowledge. Prioritizing e-service quality in a highly competitive market may boost brand loyalty, lower churn rates, and build consumer trust. Telecom companies in Pakistan may improve their market position and create a more smooth and gratifying client experience by meeting consumer expectations in the digital sphere. Second, because it shows that e-customer trust is much increased by better e-service quality, the research makes important practical contributions to Pakistan's telecom industry. Telecom firms may use this information to improve their digital service plans by emphasizing timeliness, security, dependability, and user-friendly interfaces. Customers are more likely to be loyal and build better ties with service providers when they believe that online services are reliable and effective. Telecom companies may increase consumer trust in an increasingly digital marketplace, lower customer skepticism, and get a competitive advantage in Pakistan's changing telecom market by continuously providing high-quality e-services. Third, this research demonstrates that e-customer happiness significantly

increases e-customer loyalty, which has important practical implications for Pakistan's telecom industry. Telecom businesses may take advantage of this discovery by giving priority to customer-centric tactics that improve happiness across digital touchpoints, such effective online assistance, smooth service delivery, and open communication. Customer satisfaction increases the likelihood that a customer will remain with a business, refer others to it, and avoid moving to a rival. Therefore, in Pakistan's cutthroat telecom industry, telecom providers may guarantee long-term company success, build brand reputation, and cultivate long-term loyalty by continuously meeting or surpassing consumer expectations in the digital environment. Fourth, subsequently e-customer trust has a major control on e-customer loyalty, this research provides important practical insights for Pakistan's telecom industry. Customer loyalty to telecom providers is higher when they are seen as trustworthy and offer digital services that are transparent, dependable, and safe. This may be used by telecom firms by bolstering data protection protocols, guaranteeing constant service quality, and rapidly resolving consumer issues via digital channels. Increasing and preserving trust improves customer advocacy and lifetime value in addition to lowering attrition. Thus, building e-customer trust is a strategic advantage for attaining competitive advantage and long-term loyalty in Pakistan's vibrant telecom sector. Fifth, by showing that customer satisfaction favorably modulates the link between e-service quality and customer loyalty, especially in Pakistan's telecom industry, this research makes significant practical contributions. This suggests that unless they also result in client happiness, excellent e-services by themselves are insufficient to guarantee loyalty. Therefore, in order to increase customer satisfaction, telecom businesses should concentrate on improving the total customer experience in addition to the technical and functional components of their digital services, such as responsiveness, dependability, and simplicity of use. By doing this, businesses may successfully turn providing high-quality services into enduring client loyalty, guaranteeing steady development and a competitive edge in the digital telecom market. **Sixth**, this research makes important practical contributions by demonstrating that, in Pakistan's telecom industry, e-customer trust favorably modulates the link between e-service quality and customer loyalty. The results of this study indicate that providing excellent digital services by themselves is insufficient to increase client loyalty unless such services also promote trust. Therefore, telecom businesses should concentrate on developing safe, transparent, and dependable online experiences in order to gain their consumers' confidence. Improving attributes like data protection, timely problem solving, and reliable service performance may increase consumer trust, which in turn leads to increased loyalty. In a competitive digital world, telecom providers may achieve long-term success and better customer retention by emphasizing trust as a major result of e-service quality.

Conclusion

E-service quality has become a major challenge in this decade. In Pakistan's telecommunications industry, the present study investigates the predictors of e-customer loyalty by establishing a conceptual/theoretical framework based on a model of reciprocal mediation supported by the theory of e-services quality, e-customer satisfaction, and e-customer trust. Adopted questionnaires were used to study the influence of e-service quality on e-customer satisfaction and e-customer trust. Furthermore, to check the mediating effect of e-customer satisfaction and e-customer trust on e-service quality and e-customer loyalty. Around 500 questionnaires were distributed to users of several cellular networks from various areas in Punjab, Pakistan, with 312 useable questionnaires being returned and used for data analysis. SPSS-20 and AMOS-23 were used to obtain the results. The findings show that the conceptual/theoretical model suggested in this study is adequate in terms of reliability. Moreover, results from the current study demonstrate the positive and substantial connection between e-service quality, e-customer loyalty, e-customer trust, and e-customer satisfaction. Moreover, e-customer satisfaction and e-customer trust had an extensive mediation influence between the quality of e-service and loyalty to e-customers. The research has

led us to conclude that e-service quality creates loyalty for e-customers in Pakistan's cellular sector's highly competitive yet unstable market structure.

Limitations and Future Research Directions

The data is acquired from few districts of Punjab province in a convenient manner, which may restrict the result's generalizability. The second issue could be the study's sample, as collected the data from students of universities and colleges in few districts of Punjab Pakistan, thereby limiting the range of validity. The investigation will take a long time. Conducting necessary research was challenging and time-consuming due to a lack of time and resources. The study takes a long time to finish, and if the sample size desires to be increased, the period must also be extended. Due to a lack of time, data was collected using a cross-sectional approach. The sample of this research study has limited to the young generation, mostly college and university students. The current study used a self-administering questionnaire survey approach for data collection, which was filled out by college and university students. Still, researcher can't rule out the potential of unbiased responses from students who were participants (Aquino and Lamertz, 2004). Further, this study is convenient and only restricted to the population of Pakistan, but it may test in other countries as well in future. Researcher agree that this study is a novel way for future research in this field. A range of product segments and various companies should be covered by future work to verify the measurement works equally well throughout several products and industry categories. In other sectors, the size may have to be modified. Various techniques might be utilized in future research, including focus groups and interviews.

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