REVISTA Criterio Libre

7

LOYALTY AND PERCEIVED VALUE IN MOBILE TELECOMMUNICATIONS SERVICES IN COLOMBIA

CKAYROM ALFONSO VALENCIA CIFUENTES
SANDRA PATRICIA ROJAS-BERRIO

Citar este artículo así:

Valencia, C. A. y Rojas, S. P. (2024). Loyalty and perceived value in mobile telecommunications services in Colombia. Revista Criterio Libre, 22(41). DOI: https://doi.org/10.18041/1900-0642/criteriolibre.2024v22n41.10832

LOYALTY AND PERCEIVED VALUE IN MOBILE TELECOMMUNICATIONS SERVICES IN COLOMBIA

FIDELIDAD Y VALOR PERCIBIDO EN LOS SERVICIOS DE TELECOMUNICACIONES MÓVILES EN COLOMBIA

Ckayrom Alfonso Valencia Cifuentes*
Sandra Patricia Rojas-Berrio**

Fecha de recepción:21 de abril de 2024
Fecha de aprobación:14 de mayo de 2024

DOI: https://doi.org/10.18041/1900-0642/criteriolibre.2024v22n41.10832

Abstract

It is essential for telecommunications operators to implement strategies aimed at building customer loyalty in order to improve their financial performance. One key factor that positively influences customer loyalty is perceived value, which should be considered in marketing strategies to strengthen this relationship. This study aims to analyze the connection between loyalty and perceived value among mobile telecommunications customers in Colombia. The hypothesis proposes a relationship between the dimensions of value and loyalty, based on a previously developed scale. Using a methodological approach that includes 406 surveys of mobile service users in Colombia, the relationship between these constructs is verified. The results indicate a positive and direct relationship between loyalty and perceived value across the four proposed dimensions.

Keywords: Loyalty, perceived value, value dimensions, mobile telecommunications.
JEL Code Article: L96, M38, M30, D46, L96, M31

*Administración de Empresas, Universidad Nacional de Colombia. Bogotá, Colombia. Magíster en Administración, Universidad Nacional de Colombia. Bogotá, Colombia. Investigador Grupo de Investigación Management and Marketing. Correo electrónico: ckavalenciaci@unal.edu.co
**Administración de Empresas, Universidad Nacional de Colombia. Bogotá, Colombia. Maestría en Administración, Universidad Nacional de Colombia. Bogotá, Colombia. Doctorado en Ciencias Administrativas, Instituto Politécnico Nacional. Ciudad de México, México. Profesora Asociada, Universidad Nacional de Colombia. Bogotá, Colombia. ORCID: https://orcid.org/0000-0002-1148-3779 Correo electrónico: sprojasb@unal.edu.co

Resumen

Es fundamental que los operadores de telecomunicaciones implementen estrategias encaminadas a fidelizar a sus clientes para mejorar su desempeño financiero. Un factor clave que influye positivamente en la fidelidad del cliente es el valor percibido, que debe considerarse en las estrategias de marketing para fortalecer esta relación. Este estudio tiene como objetivo analizar la conexión entre la lealtad y el valor percibido entre los clientes de telecomunicaciones móviles en Colombia. La hipótesis propone una relación entre las dimensiones de valor y lealtad, a partir de una escala previamente desarrollada. Utilizando un enfoque metodológico que incluye 406 encuestas a usuarios de servicios móviles en Colombia, se verifica la relación entre estos constructos. Los resultados indican una relación positiva y directa entre la lealtad y el valor percibido en las cuatro dimensiones propuestas.

Palabras clave: Lealtad, valor percibido, dimensiones de valor, telecomunicaciones móviles.

Clasificación JEL: L96, M38, M30, D46, L96, M31

1. Introducción

According to IWS (2020), internet usage has steadily increased in recent years. By June 2019, global internet penetration reached 58.7%, representing a growth of 1167% since 2000. This highlights the growing significance of telecommunications adoption. In the case of mobile networks, mobile telephony has continued its expansion over the past decade. In South America, internet penetration stands at 71.8%, largely driven by the use of mobile devices to access the internet.

In the Latin American context, countries that have implemented number portability have experienced shifts in market dynamics, with an increasing number of customers taking advantage of this option. According to regulatory authorities, mobile operators are responsible for managing these transactions and covering the associated costs to ensure service provision and uphold consumers' right to portability.

In recent years, smartphone penetration in Colombia has reached approximately 75% of the population, with mobile data consumption increasing by 40% since 2018, driven by the rising demand for digital services (MinTIC, 2023). Additionally, Colombian consumers have demonstrated a preference for bundled telecom service packages. The ease of switching operators has also affected customer loyalty, with 25% of users changing providers in the last two years (CRC, 2022; GSMA Intelligence, 2023).

In countries such as Germany, the ability to retain one's phone number is closely tied to customer loyalty in mobile telephony, as it creates a switching barrier, or cost, for the customer. Gerpott, Rams, and Schindler (2001) argue that this barrier reduces the likelihood of customers changing their mobile operator, even when their satisfaction or loyalty is low.

Similarly, in France, Lee (2001) found that switching costs mediate the relationship between customer satisfaction and loyalty. When such costs, including contractual and portability barriers, are eliminated, other strategies for enhancing customer loyalty become more important. In Korea, Shin and Kim (2007) observed that mobile operators need to adopt new strategies to retain loyal customers when barriers like number portability are removed from the market landscape.

In this context, Chen et al. (2012, p. 807) argue that "raising customer loyalty is one of the most important tasks for telecom companies confronting the circumstance of a gradually saturated market." Consequently, as Morgan and Govender (2017) point out, analyzing customer loyalty becomes crucial, as it serves as a tool for retaining customers, which, in turn, enhances a company's profitability. Oliver (1999) further emphasizes that loyalty has become a key strategy for many companies, given the importance of maintaining a loyal customer base.

In this regard, Fornell and Wernerfelt (1987) argue that in competitive markets, companies must adopt defensive strategies to maintain a loyal customer base, as retaining existing customers is more cost-effective than acquiring new ones. Additionally, according to Gupta et al. (2006), marketing actions that influence customer perceptions, such as loyalty or purchase intent, are directly linked to higher financial profitability.

For this reason, loyalty has been extensively studied in various countries as a critical construct in the context of mobile telecommunications services. Researchers aim to identify the factors most strongly associated with loyalty and explore the managerial implications of leveraging loyalty through other constructs (Aydin & Ozer, 2005; Chen et al., 2012; Deng et al., 2009; Edward, 2011; Kim, Chan, & Gupta, 2007; Lee, 2001; Morgan et al., 2017).

In line with Chen and Cheng (2012), and based on the existing literature on the relationship between perceived value and loyalty, perceived value is considered one of the key factors influencing customer loyalty in mobile telecommunications. Companies should prioritize this aspect to improve their operational outcomes. This study examines the relationship between loyalty and perceived value in mobile telecommunications services, using Colombia as a case study.

2. Literature Review

Zeithaml (1988) defines perceived value in the literature through four distinct perspectives from the consumer's viewpoint: low price, fulfillment of desired attributes in a product, the quality received relative to the price paid, and the overall exchange of what is gained versus what is given.

It is important to recognize that value is entirely dependent on the customer's perception, and only the customer can determine what is truly valuable in a brand or product.

Kotler and Armstrong (2013, p. 13) argue that creating value for the customer is fundamental to building lasting relationships, as the purchasing decision is often linked to the company that generates a higher perceived value for the customer. It is important to note that customers do not objectively assess the value and costs of products and services; instead, they rely on perceived value.

This concept is defined as "the customer's evaluation of the difference between all the benefits and all the costs of a market offer, compared to the offers of the competition." By generating greater value for the customer, companies foster higher satisfaction and loyalty, leading to increased purchases. Similarly, Holbrook (2002) emphasizes that value is a central concept that underpins and rationalizes marketing, as it gives meaning to the transaction, where something is exchanged with the expectation of receiving something of greater value in return.

Woodruff (1997) suggests that value is based on the customer's perception rather than a characteristic determined by the seller. It is the result of a transaction in which the customer weighs what they give or sacrifice against what they receive in return. Additionally, Sheth, Newman, and Gross (1991) propose five dimensions of value that guide consumer behavior in making choices. These dimensions are independent of each other and differentially influence the consumer's purchase decision, as one or more may have an effect:

- **Functional value:** Refers to the usefulness of the product or service, considering its physical characteristics, utility, and functionality.
- **Social value:** Relates to the social impact of the product, whether positively or negatively associated with a specific demographic, socioeconomic, cultural, or ethnic group.
- **Emotional value:** Pertains to the product's ability to evoke or reinforce certain emotions.
- **Epistemic value:** Arises when the product stimulates curiosity, offers novelty, or satisfies a desire for knowledge.
- **Conditional value:** Refers to the value gained by the product in situations of physical or social contingency, where its relevance increases.

Sweeney and Soutar (2001) identify four dimensions of value, which are defined in Table 1.

Kim, Chan, and Gupta (2007) examine the adoption of mobile internet from a value-based perspective, focusing on the perceived value at the initial stages of mobile internet usage, when its market penetration was significantly lower than it is today. The findings of the study highlight the importance of perceived value as a critical factor influencing customer adoption of mobile internet.

Perceived value has been shown to have a positive relationship with several marketing constructs, including customer satisfaction (Ali et al., 2015; Lei & Li, 2013; Lin & Chiang, 2011; Liu, 2008; Negi, 2010; Yen, 2012) and intention to adopt (Sharma & Xiaoming, 2012).

Table 1: Perceived value dimensions

Emotional value	Utility derived from the feelings or affective states that a product generates
Social value (improvement of social self-concept)	Usefulness derived from the product's ability to improve social self-concept
Functional value (price/monetary value)	Profit derived from the product due to the reduction of its perceived costs in the short and long term
Functional value (performance/quality)	Utility derived from the perceived quality and expected performance of the product

Source: Taken from Sweeney et al. (2001)

According to Oliver (1997, p. 392), loyalty is defined as a "deeply held commitment to consistently repurchase a good or service in the future, leading to repeated purchases of the same brand despite efforts by the market to encourage switching behavior." Dick and Basu (1994) conceptualize loyalty as a relationship between the pattern of repeat purchases and a customer's relative attitude, which is shaped by cognitive, affective, and conative antecedents.

Cunningham (1956) defines loyalty as a behavioral pattern observed in families that repeatedly purchase the same brand within a product category. He associates the concept of loyalty with the questions "what?", "when?", and "how much?", emphasizing that these characteristics are essential to understanding loyalty through the lens of customer purchasing habits. In line with Dick and Basu (1994), Wong and Zhou (2006) categorize loyalty into two key elements. The first relates to purchasing habits, specifically the frequency with which a customer repeatedly buys a good or service. The second focuses on the consumer's purchase attitudes, referring to positive attitudes toward a product, service, or company.

In the study of loyalty, several marketing dimensions have been identified that directly or indirectly influence customer behavior or attitudes toward their mobile telecommunications service providers. According to Gupta and Sahu (2015), elements such as brand image, loyalty programs, customer satisfaction, service quality, technology orientation, long-term relationships, and trust have been linked to this relationship. However, as shown in Table 2, the relationship between loyalty and other constructs has also been examined, considering the country in which each study was conducted. This is important because factors such as satisfaction and loyalty are influenced by the cultural context and socio-economic characteristics of the market (Aksoy et al., 2013; Jahanzeb, Fatima, & Khan, 2011).

Table 2. Loyalty-related constructs in the literature.

Construct	Authors
Commitment	Cambra, Melero, and Sese (2012); Hapsari, Hussein, and Handrito (2020); Izogo (2017); Kaur and Soch (2012)
Satisfaction	Akroush, et al. (2011); Akroush and Elsamen (2012); Chang and Chong (2011); Chicaíza-Becerra, et al. (2017); Eskafi, Hosseini, and Yazd (2013); Hadi, Aslam, and Gulzar (2019); Kaur and Soch (2018); Kim, et al. (2018); Kim, et al. (2016); Kumar, Ravi Kumar, and Pavithra (2019); Lai (2004); Liang, et al. (2018); Lin, Wan, and Pu (2010); Liu (2008); Mishra, Praharaj, and Sahoo (2016); Qayyum and Khang (2011); Qi, et al. (2012); Quoquab, et al. (2018); Rahul and Majhi (2014); Rajini and Balaji (2017); Santouridis and Trivellas (2010); Shafei and Tabaa (2016); Strenitzerová and Gaňa (2018); Svendsen and Prebensen (2013); Tabaku and Çerri (2015); Wen and Hilmi (2011); Yue and Yue (2019); Zhang, et al. (2014)

Construct	Authors
Quality of service	Akroush, et al. (2011); Bamatraf and Rashid (2020); Chia-Hua and Tho (2018); Lee (2011); Malhotra and Malhotra (2013); Morgan et al. (2017); Ofori, Boakye, and Narteh (2018); Qayyum et al. (2011); Saleem and Raja (2014); Santouridis et al. (2010)
Voice to voice	Ngoma and Ntale (2019)
Corporate Social Responsibility	Moisescu (2017)
Intent to change	Kaur Sahi, Sambyal and Sekhon (2016)
Cost of change	Akroush et al. (2011); Jia and Yan (2005); Kim, Park, and Jeong (2004); Lin et al. (2010); Yang (2015)
Perceived experience	Bhatti, Abareshi and Pittayachawan (2017)
Image	Lee (2011); Morgan et al., (2017); Qayyum et al. (2011); Tabaku et al. (2015)
Confidence	Akroush et al. (2011); Aslam et al. (2018); Jia et al. (2005); Karjaluoto et al. (2012); Lin et al. (2010)

Source: Own elaboration.

In the South African mobile telecommunications market, there is evidence of a highly competitive environment where customer retention is driven by fostering customer loyalty. This study aimed to evaluate the relationship between perceived value and customer loyalty within this context. According to Morgan et al. (2017), a positive relationship between perceived value and loyalty was identified in this market, though it was mediated by customer satisfaction. Additionally, Chen and Cheng (2012) conducted research exploring the relationships between service quality, perceived value, satisfaction, and loyalty. Surveys were administered in public spaces to mobile phone users over the age of 18, and a structural equation model was generated to analyze the relationships between the variables. Similarly, Lai, Griffin, and Babin (2009) conducted a study in China to understand how quality, value, image, and satisfaction contribute to loyalty in a Chinese telecommunications company. Their research found that both customer satisfaction and perceived value have a direct influence on loyalty. Overall, loyalty behaviors in China appear to align closely with those found in Western studies.

In Ghana, Boateng et al. (2020) investigated the relationship between experiential value, brand attachment, and brand loyalty in the mobile telecommunications sector. Their findings revealed a direct relationship between experiential value and loyalty, mediated by brand attachment. It was determined that experiential value can foster brand attachment in customers, which ultimately leads to brand loyalty. Conversely, in Kuwait, Rizomyliotis et al. (2020) examined the effect of perceived quality, perceived value, and brand value on customer loyalty. Using surveys and structural equation models, they concluded that both perceived service value and perceived quality are positively associated with customer loyalty.

Additionally, in Taiwan, Chen (2019) investigated the indirect relationship between perceived value, perceived service quality, and loyalty. The study found that perceived value positively impacts customer satisfaction, which in turn enhances loyalty, and that perceived value is more influential than service quality and brand image in this regard. However, perceived value alone does not have a stronger effect than brand image or service quality unless it is accompanied by high levels of satisfaction.

In general, multiple studies have identified relationships between loyalty and perceived value, with varying results depending on the research.

In several cases, a significant direct positive relationship has been found between perceived value and behavioral intentions related to loyalty (Al-Refaie, Jalham, & Li, 2012; D'Alessandro et al., 2015; Giovanis, Athanasopoulou, & Tsoukatos, 2016; Giovanis & Tsoukatos, 2017; Huan, Xu, & Li, 2005; Lin et al., 2011; Martins, Hor-Meyll, & Ferreira, 2013; Qayyum et al., 2011; Segarra-Moliner & Moliner-Tena, 2016; Tarus & Rabach, 2013; Yee, Ling, & Leong, 2015; Yen, 2012). In other instances, the relationship has been found to be mediated by constructs such as trust (Karjaluoto et al., 2012) and satisfaction (Chung et al., 2016; Hernandez-Ortega et al., 2017; Shafei et al., 2016). However, some studies have found insufficient evidence of this relationship (Leong et al., 2012).

In Pakistan, Aslam et al. (2018) aimed to identify the relationship between customer trust, service quality, and value dimensions in relation to customer satisfaction and loyalty in telecommunications services. To achieve this, a survey was conducted with 406 service users.

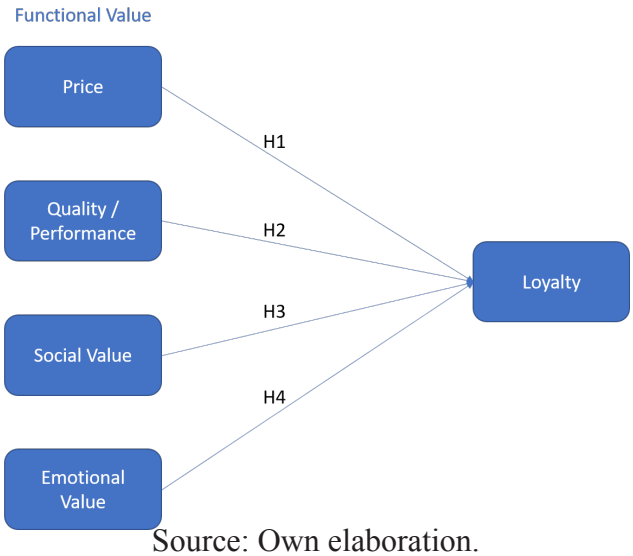
Regarding the value dimensions, it was found that the monetary and emotional dimensions positively impact satisfaction, which in turn positively influences loyalty, while the social and functional dimensions show no significant relationship. In contrast, Deng et al. (2009, 2010) indicate that the functional and emotional dimensions in Chinese mobile telecommunications services have a positive relationship with satisfaction and loyalty, whereas the social and monetary dimensions do not show a significant relationship. However, Wang and Lo (2004) had previously found that in the Chinese market, none of the value dimensions demonstrated a significant relationship with loyalty. Similarly, the findings by Senić and Marinković (2014) suggest a positive relationship between functional, emotional, monetary, and social value and loyalty. In their study, emotional and social value were related to attitudinal loyalty, while functional and monetary value were linked to behavioral intentions associated with loyalty.

Consequently, the literature review leads to the following hypotheses:

- H1: There is a relationship between the functional value (quality/performance) of mobile telecommunication services and customer loyalty.
- H2: There is a relationship between the functional value (price) of mobile telecommunications services and customer loyalty.
- H3: There is a relationship between the emotional value of mobile telecommunication services and customer loyalty.
- H4: There is a relationship between the social value of mobile telecommunications services and customer loyalty.

A sagittal diagram (Figure 1) illustrates the relationships proposed in this research, where the variables—functional value (with its components associated with quality/performance and price), emotional value, and social value, as described by Sweeney and Soutar (2001)—are identified as independent variables. Loyalty, in turn, is the dependent variable in these relationships.

Figure 1. Proposed model



Source: Own elaboration.

3. Method

To test the hypotheses, a quantitative methodological design was selected, building on approaches used in previous research. In the literature, surveys of mobile telecommunications customers are commonly used to evaluate the constructs of perceived value and customer loyalty. Thus, the same strategy was adopted, utilizing multi-item scales that had been previously validated in earlier studies (Chen et al., 2012; Deng et al., 2010; Lai et al., 2009; Miao et al., 2014; Morgan et al., 2017; Ortegón et al., 2016). Following Saunders, Lewis, and Thornhill (2016), a snowball sampling technique was employed, with voluntary participation and aggregated data management.

The scales identified in the systematic literature review were considered, with the scale proposed by Sweeney and Soutar (2001) selected for evaluating perceived customer value. This choice was based on Gil and Gonzalez's (2008) assertion that this multidimensional scale is the most robust and rigorous available. Additionally, it is the same scale used by Ortegón et al. (2016), whose work was the only one identified in the literature review that evaluated value in the context of mobile telecommunications in Colombia.

This scale is characterized by evaluating functional value in two dimensions: one associated with price and the other with quality or performance, as well as emotional value and social value. For the evaluation of loyalty, the scale adapted for the telecommunications sector by Morgan and Govender (2017) was used, as it has been validated and meets reliability standards for measuring loyalty.

In addition, a control question regarding the use of mobile telecommunications services in the country was included, along with two demographic variables—age and gender—which have similarly been incorporated in other studies of this nature, such as those conducted by Deng et al. (2010). Consequently, the proposed measurement instrument is outlined as follows (Table 3):

A pilot test was conducted with 15 mobile telecommunications service users in Colombia, during which feedback was gathered regarding the clarity of the proposed questions. No changes were made to the initially proposed instrument based on the feedback. Similar pilot tests have been carried out in studies such as those by Boateng et al. (2020), Rizomyliotis et al. (2020), and Yew and Rahman (2019).

The systematic literature review revealed that the convenience sampling technique is the most commonly used in this type of research. Additionally, based on the most recent studies included in the review, the average sample size is 475 respondents, with a standard deviation of 222 surveys, as calculated from the data presented in Table 4.

Table 3. Items included in the instrument.

Construct/item	Theoretical Basis
MV: Functional Value (Price)	Sweeney and Soutar (2001)
MV1: Reasonably priced	
MV2: Offers a good cost/benefit ratio	
MV3: Is a good service for the price	
MV4: Is economical	
FV: Functional Value (Quality/Performance)	
FV1: Has a consistent quality of service	
FV2: Is a well-delivered service	
FV3: Has an acceptable standard of quality	
FV4: Its customer service is poor	
FV5: The service functions in a consistent manner	
EV: Emotional Value	
EV1: I enjoy your service	
EV2: It makes me want to use it	
EV3: Makes me feel relaxed when I use it	
EV4: Makes me feel good	
EV5: Gives me satisfaction	
Construct/item	**Theoretical Basis**
SV: Social Value	
SV1: I enjoy its service	
SV2: Improves the way others perceive me	
SV3: Makes a good impression on other people	
SV4: Gives your user social approval	
CL: Loyalty	Morgan et al. (2017)
CL1: I am loyal to my service provider.	
CL2: I will not change my service provider	
CL3: If I were to start over, I would choose my current service provider as my service provider	
CL4: In the future, I intend to purchase additional products/services from the same provider	

Source: Own elaboration.

Table 4. List of authors with sample sizes and sampling techniques.

Authors	Territory	Sample size	Sampling technique
Boateng et al. (2020)	Ghana	500	Convenience
Hapsari et al. (2020)	Indonesia	257	Convenience
Rizomyliotis et al. (2020)	Kuwait	350	Convenience
Ngoma et al. (2019)	Uganda	384	Convenience
Yew et al. (2019)	Malaysia	431	Convenience
Chen (2019)	Taiwan	626	Convenience
Hadi et al. (2019)	Pakistan	213	Convenience
Salhieh (2019)	Jordanian	450	Convenience
Saroha and Diwan (2020)	India	770	Convenience
Kim et al. (2018)	South Korea	846	Convenience
Aslam et al. (2018)	Pakistan	406	Convenience
Chia-Hua et al. (2018)	Vietnam	557	Convenience
Kaur et al. (2018)	India	885	Convenience
Ofori et al. (2018)	Ghana	235	Convenience
Strenitzerová et al. (2018)	Slovakia	151	Convenience
Quoquab et al. (2018)	Malaysia	535	Convenience

Source: Own elaboration.

The survey was distributed using an online form via Google Forms, which offers the advantage of easy replication and the ability to make responses mandatory, thereby reducing the likelihood of invalid questionnaires. The survey was available for one week, during which 420 responses were collected. The selection criterion for participants was that they had been using the same mobile operator for over one year.

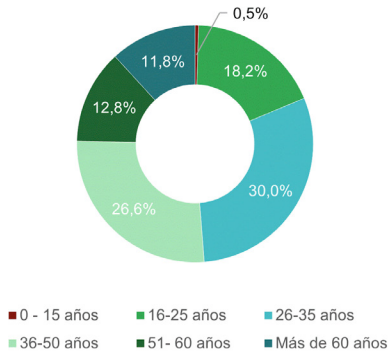
The analysis of the results was conducted using SmartPLS, a software tool commonly employed in studies evaluating constructs such as loyalty, perceived value, perceived quality, and satisfaction, as referenced by Fornell and Larcker (1981). Additionally, the partial least squares (PLS) technique offers evidence on the quality of the measures and their suitability for assessing the theoretical relationships between the studied constructs (Babin, Hair, & Boles, 2008; Hair et al., 2012).

It is important to note that, of the 420 completed surveys, 14 respondents indicated that they did not use mobile telecommunications services in Colombia. As a result, these records were excluded from the analysis, leaving a total of 406 surveys for this research. Additionally, it should be noted that the FV4 variable corresponds to an inverse scale and was evaluated accordingly. The results will be described and analyzed in the following section.

4. Results

The gender and age range of the respondents were considered. In terms of gender, 57.4% of respondents were female and 42.6% were male. This contrasts with the national population distribution, where, according to DANE (2018), although the majority of the population is female, the gender difference is 2.8 percentage points, compared to the 14.8 percentage points observed in this study. The age distribution of the sample showed a predominance of respondents between 16 and 60 years of age, with the population under 15 years being the least represented (Figure 2).

Figure 2. Distribution of the sample by age range.



Source: Own elaboration.

As part of the validation of the statistical model presented and evaluated using the SmartPLS software, the results of key indicators and their respective interpretations are presented below.

This measure assesses convergent validity, which indicates the degree to which variables are positively correlated with other related variables. The higher the external loadings of a construct, the stronger the relationship between the variables, and thus, this measure should be statistically significant. The square of this relationship is used as an indicator of how much of the variation in an item is explained by the construct. As Hair et al. (2017, p. 113) suggest, the general rule is that the value must exceed the square of 0.5, i.e., greater than 0.708, to be considered acceptable.

It was observed that, with the exception of item FV4, all items demonstrate reliability, as their values exceed 0.708. Item FV4 was removed from the model due to its low score on this indicator (Table 5).

Table 5. External load analysis

Construct/Item	Initial External Load	Adjusted External Load
Loyalty		
CL1	0.810	0.810
CL2	0.834	0.834
CL3	0.879	0.879
CL4	0.732	0.732
Emotional Value		
EV1	0.854	0.854
EV2	0.886	0.886
EV3	0.909	0.909
EV4	0.925	0.925
EV5	0.915	0.915
Functional Value (Quality/ Performance)		
FV1	0.902	0.904
FV2	0.901	0.901
FV3	0.886	0.888
FV4	0.256	Not Applicable
FV5	0.847	0.854
Functional Value (Price)		
MV1	0.897	0.897
MV2	0.906	0.906
MV3	0.883	0.883
MV4	0.824	0.824
Social Value		
SV1	0.891	0.891
SV2	0.943	0.943
SV3	0.948	0.948
SV4	0.919	0.919

Source: Own elaboration.

The average variance extracted (AVE) is used to assess the convergent validity of the constructs. It is calculated as the average of the squared loadings of each item that composes a construct, and its result indicates the proportion of variance in the indicators explained by the construct. According to Hair et al. (2017, p. 114), an AVE value greater than 0.5 suggests that more than half of the variance in the indicators is explained by the construct.

The AVE results are acceptable, as they exceed 0.5, taking into account the exclusion of item FV4. In general, all values are above 0.6, with some constructs reaching values greater than 0.8. The results for this indicator are presented in Table 6.

Table 6. Mean extracted variance results.

Construct	Average variance extracted (AVE)
Loyalty	0.665
Emotional Value	0.807
Functional Value (Quality/Performance)	0.787
Functional Value (Price)	0.771
Social Value	0.856

Source: Own elaboration.

This process helps identify reliability based on the inter-correlation of observed variables. For this purpose, Hair et al. (2017, p. 112) reference Cronbach's alpha as the indicator used to estimate these correlations. Another option for measuring reliability is the composite reliability indicator, although Cronbach's alpha typically produces lower values than composite reliability. This difference arises because composite reliability accounts for individual item loadings, making the constructs appear more reliable. Consequently, Cronbach's alpha is considered a more conservative indicator, as it tends to yield lower reliability values, as noted by Hair et al. (2018).

For the analysis of both indicators, the same acceptance parameters are typically applied. Values between 0.6 and 0.7 are considered acceptable in the exploratory phase of research, while values between 0.7 and 0.9 are expected in more advanced stages. However, Hair et al. (2018) caution that values above 0.95 can be problematic, as they may indicate redundancy between items, thereby reducing construct validity.

In this case, most constructs show indicators greater than 0.9; however, for Cronbach's alpha, none exceed 0.95. On the other hand, in the case of composite reliability, it is observed that emotional value and social value exceed 0.95, suggesting redundancy in the items (Table 7).

Table 7. External consistency reliability indicators

Construct	Cronbach's alpha	Composite reliability
Loyalty	0.831	0.888
Emotional Value	0.940	0.954
Functional Value (Quality/ Performance)	0.909	0.936
Functional Value (Price)	0.900	0.931
Social Value	0.944	0.960

Source: Own elaboration.

Given the redundancy identified in the internal consistency reliability, collinearity was analyzed to identify the items contributing to it. This was done using the variance inflation factor (VIF) of the external model, which assesses the collinearity of the items. According to Hair et al. (2017), VIF values close to 3 are acceptable, while values greater than 5 indicate a potential collinearity issue.

Given the redundancy identified in the internal consistency reliability, collinearity was analyzed to identify the items contributing to it. This was done using the variance inflation factor (VIF) of the external model, which assesses the collinearity of the items. VIF values close to 3 are considered acceptable, while values exceeding 5 indicate potential collinearity issues (Table 8).

Table 8. VIF analysis of the external model.

Item	Initial VIF	Adjusted VIF
CL1	2.105	2.105
CL2	2.244	2.244
CL3	2.171	2.171
CL4	1.456	1.456
EV1	2.523	2.488
EV2	3.130	3.058
EV3	4.030	3.371
EV4	5.022	Not Applicable
EV5	4.230	3.387
FV1	3.220	3.220
FV2	3.197	3.197
FV3	2.777	2.777
FV5	2.342	2.342
MV1	3.135	3.135
MV2	3.439	3.439
MV3	2.618	2.618
MV4	1.957	1.957
SV1	2.892	2.378
SV2	5.849	Not Applicable
SV3	6.378	Not Applicable
SV4	3.923	2.378

Source: Own elaboration.

With the adjusted VIF values, improvements are observed in the values of other items within the same construct. Similarly, the internal consistency reliability was re-evaluated, showing that the composite reliability for emotional value and social value decreased to below 0.95 (Table 9).

Table 9. Adjusted internal consistency reliability analysis.

Construct	Cronbach's alpha	Composite reliability
Loyalty	0.831	0.888
Emotional Value	0.918	0.942
Functional Value (Quality/ Performance)	0.909	0.936
Functional Value (Price)	0.900	0.931
Social Value	0.864	0.936

The AVE and external loadings were re-evaluated to assess the impact of removing the three items from the model and to ensure that the values remained within the acceptable ranges for each indicator. No significant changes were observed in the external loadings, which remained within acceptable limits (Table 10). Similarly, the AVE values also remained within acceptable ranges (Table 11).

Table 10. Analysis of external loads after collinearity adjustment.

Construct/Item	Adjusted External Load
Loyalty	
CL1	0.812
CL2	0.835
CL3	0.880
CL4	0.729

Construct/Item	Adjusted External Load
Emotional Value	
EV1	0.871
EV2	0.898
EV3	0.905
EV5	0.910
Functional Value (Quality/ Performance)	
FV1	0.904
FV2	0.901
FV3	0.888
FV5	0.847
Functional Value (Price)	
MV1	0.897
MV2	0.906
MV3	0.883
MV4	0.823
Social Value	
SV1	0.943
SV4	0.934

Source: Own elaboration.

Table 11. AVE analysis after collinearity adjustment.

Construct	Average variance extracted (AVE)
Loyalty	0.666
Emotional Value	0.803
Functional Value (Quality/Performance)	0.787
Functional Value (Price)	0.771
Social Value	0.881

Source: Own elaboration.

Finally, the VIF values of the structural model were evaluated to assess collinearity between the constructs. This was done using the same approach as for the VIF in the external model.

The current values for this indicator were found to be within acceptable ranges for all constructs (Table 12).

Table 12. VIF analysis of the structural model

Construct	VIF
Loyalty	-
Emotional Value	4.001
Functional Value (Quality/ Performance)	3.095
Functional Value (Price)	2.029
Social Value	1.450

Source: Own elaboration.

Discriminant validity refers to the degree to which a construct is empirically distinct from others. In this case, it is measured using three different methodologies. The first method, proposed by Fornell et al. (1981), suggests comparing the AVE of each construct with the squared correlations between the constructs. The acceptance criterion is that the shared variance between each pair of constructs should not exceed the AVE of the construct itself.

In this case, based on the criteria of Fornell et al. (1981), it is evident that the constructs in the model for this research remain within acceptable parameters, as the shared variance between any two constructs is never greater than the AVE of each construct (Table 13).

Table 13. Fornell-Larcker discriminant validity analysis.

Construct	Loyalty	Emotional Value	Functional Value (Quality/ Performance)	Functional Value (Price)	Social Value
Loyalty	0.816				
Emotional Value	0.683	0.896			
Functional Value (Quality/ Performance)	0.624	0.806	0.887		
Functional Value (Price)	0.568	0.691	0.659	0.878	
Social Value	0.509	0.542	0.362	0.363	0.938

Source: Own elaboration.

Another method for assessing discriminant validity is through cross-loadings, as Hair et al. (2017) suggest. In this approach, the external loadings of each indicator should be greater than any of their cross-loadings. The analysis shows that discriminant validity is acceptable according to this criterion, as no external loadings are found to be lower than the cross-loadings between the items (Table 14).

Table 14. Cross-load analysis.

	Loyalty	**Emotional Value**	**Value Functional (Quality/ Performance)**	**Functional Value (Price)**	**Social Value**
CL1	0.812	0.510	0.399	0.413	0.455
CL2	0.835	0.490	0.441	0.405	0.378
CL3	0.880	0.678	0.642	0.577	0.412
CL4	0.729	0.519	0.516	0.430	0.419
EV1	0.617	0.871	0.756	0.639	0.432
EV2	0.584	0.898	0.747	0.647	0.458
EV3	0.603	0.905	0.695	0.588	0.482
EV5	0.642	0.910	0.694	0.604	0.567
FV1	0.560	0.688	0.904	0.553	0.298
FV2	0.575	0.710	0.901	0.609	0.306
FV3	0.556	0.730	0.888	0.602	0.345
FV5	0.521	0.734	0.854	0.573	0.338
MV1	0.493	0.588	0.545	0.897	0.280
MV2	0.498	0.625	0.606	0.906	0.302
MV3	0.526	0.658	0.652	0.883	0.310
MV4	0.476	0.551	0.502	0.823	0.385
SV1	0.493	0.557	0.368	0.364	0.943
SV4	0.461	0.458	0.309	0.315	0.934

Source: Own elaboration.

Lastly, Henseler, Ringle, and Sarstedt (2015) propose the "Heterotrait-Monotrait ratio" (HTMT) as a criterion for assessing discriminant validity. This method evaluates the ratio between correlations that measure the same construct and correlations that measure different constructs, with discriminant validity assumed when the former are higher. For discriminant validity to be confirmed, the resulting HTMT values must be less than 0.9. In this case, all the values meet this criterion, indicating that discriminant validity is confirmed for the model (Table 15).

Table 15. HTMT analysis of discriminant validity

	Loyalty	**Emotional Value**	**Functional Value (Quality/ Performance)**	**Functional Value (Price)**	**Social Value**
Loyalty					
Emotional Value	0.771				
Functional Value (Quality/ Performance)	0.704	0.884			
Functional Value (Price)	0.647	0.759	0.726		
Social Value	0.602	0.605	0.408	0.412	

Source: Own elaboration.

According to Hair et al. (2017), path coefficients represent the hypothesized relationships between the model constructs after running the PLS-SEM algorithm. These coefficients typically range between -1 and 1, where values close to 1 indicate a strong positive relationship, and values close to -1 indicate a strong negative relationship. Coefficients near 0 suggest weak or non-significant relationships. However, determining whether a relationship is truly non-significant requires considering the value of the external loadings; if the external loading is low, the relationship can be deemed non-significant and discarded. Table 16 presents the path coefficient values observed in this research.

Table 16: Path coefficients.

Construct	**Loyalty**
Loyalty	
Emotional Value	0.289
Functional Value (Quality/Performance)	0.213
Functional Value (Price)	0.148
Social Value	0.221

Source: Own elaboration.

The significance of a coefficient ultimately depends on its standard error, which is calculated through bootstrapping. The p-value is used to indicate the probability of erroneously rejecting the null hypothesis. In this research, bootstrapping was performed with a significance level of 5%,

which is commonly used in marketing-related research, as affirmed by Hair et al. (2017, p. 196). Table 17 presents the p-values for each relationship, from which it can be concluded that the coefficients are significant at the 5% level.

Table 17. Result p-value.

	p-value
Emotional Value -> Loyalty	0.000
Functional Value (Quality/Performance) -> Loyalty	0.002
Functional Value (Price) -> Loyalty	0.006
Social Value -> Loyalty	0.000

Source: Own elaboration.

The confidence intervals resulting from bootstrapping can demonstrate whether a path coefficient is significantly different from 0. If 0 is not included within these intervals, the hypothesis that the path coefficient equals 0 is rejected, thereby indicating a significant effect, as clarified by Hair et al. (2017, p. 196). In this study, none of the confidence intervals include 0, allowing us to assume a significant effect on the path coefficients (Table 18).

Table 18. Confidence intervals for trajectories.

	Original sample (O)	**Sample mean (M)**	**2.5%**	**97.5%**
Emotional Value -> Loyalty	0.289	0.290	0.142	0.437
Functional Value (Quality/ Performance) -> Loyalty	0.213	0.211	0.078	0.349
Functional Value (Price) -> Loyalty	0.148	0.151	0.047	0.259
Social Value -> Loyalty	0.221	0.220	0.118	0.323

Source: Own elaboration.

Even if a path shows a significant effect, this does not necessarily imply that it is relevant. Therefore, it is important to evaluate the effect of one construct on another to assess the overall impact they have on each other. The total effect includes both direct and indirect effects. In this research, no model accounts for indirect effects, so the impact is determined solely by direct effects (Table 19). As a result, emotional value is identified as having the greatest effect on loyalty, while functional value associated with price has the least effect.

Table 19. Total model effects.

	Total Effects
Emotional Value -> Loyalty	0.289
Functional Value (Quality/Performance) -> Loyalty	0.213
Functional Value (Price) -> Loyalty	0.148
Social Value -> Loyalty	0.221

Source: Own elaboration.

According to Hair et al. (2017, p. 198), the most commonly used measure to evaluate a structural model is the coefficient of determination (R^2). This coefficient measures the variance explained in each endogenous construct, indicating the explanatory power of the model. The higher the R^2 value, the greater the model's explanatory power, with values between 0 and 1. Specifically, R^2 values of 0.75, 0.5, and 0.25 can be interpreted as substantial, moderate, or weak explanatory power, respectively. However, as Hair et al. (2018) point out, R^2 should always be interpreted in context, as even a value such as 0.1 may be considered satisfactory depending on the research.

Given that perceptions such as value and its effect on loyalty are being measured, an R^2 value greater than 0.5 (Table 20) is considered satisfactory. This indicates that more than 50% of loyalty is explained by emotional value, social value, and functional value in both its price and quality-performance dimensions.

Table 20. R-squared result for the model

	R square	**Adjusted R-squared**
Loyalty	0.527	0.522

Source: Own elaboration.

Hair et al. (2018) explain that the impact of removing any construct from the model on the R^2 value is measured by f^2. This effect size is interpreted based on Cohen's (1988) guidelines, with values of 0.02, 0.15, and 0.35 representing small, medium, and large effects, respectively.

The effect size of the constructs is interpreted as small (less than 0.1 in all cases), as it falls within the previously defined parameters (Table 21). This indicates that removing any of the constructs does not significantly impact the R^2 value, meaning that loyalty will continue to be explained in the same manner.

Table 21. Result of the effect size of the constructs.

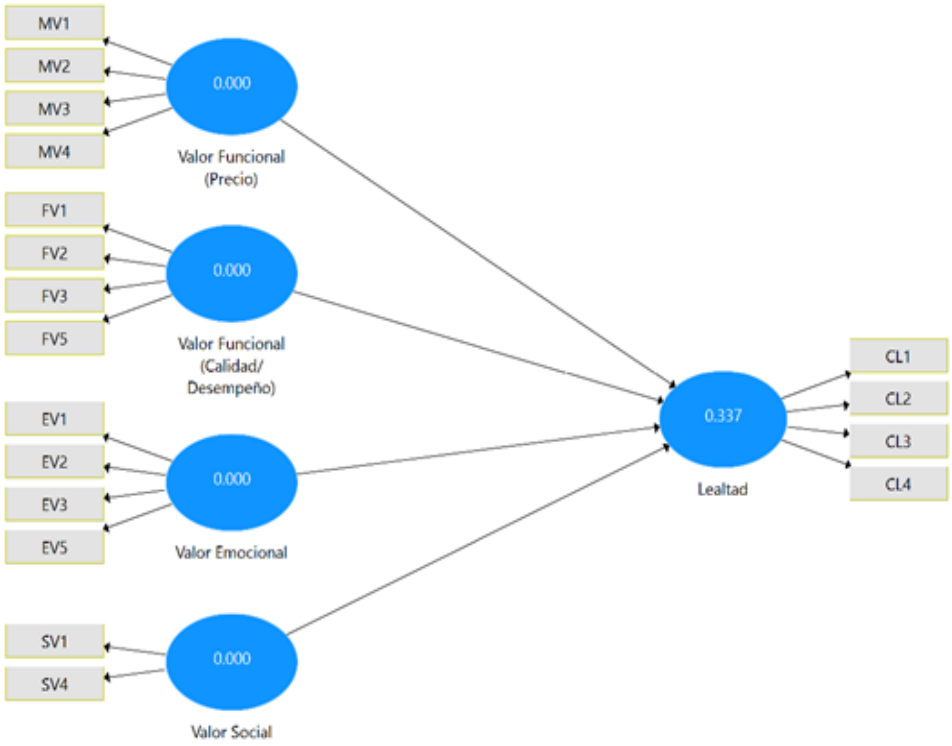
	Effect size
Emotional Value -> Loyalty	0.044
Functional Value (Quality/Performance) -> Loyalty	0.031
Functional Value (Price) -> Loyalty	0.023
Social Value -> Loyalty	0.072

Source: Own elaboration.

Q^2 is a measure used to evaluate the predictive accuracy of the model. This procedure involves eliminating individual data points from the sample, replacing them with the mean, and recalculating the model parameters. Using the blindfolding procedure, the model predicts the eliminated data points for all variables, and the resulting differences are reflected in the Q^2 value, as explained by Hair et al. (2018).

Hair et al. (2018) suggest that Q^2 values of 0, 0.25, and 0.5 serve as reference points, indicating low, medium, and high predictive relevance, respectively. In this case, a medium predictive relevance is observed, with a Q^2 value of 0.337 resulting from the calculation (Figure 3).

Figure 3. Blindfolding result and Q-squared calculation



Source: Own elaboration

The hypotheses presented at the conclusion of the theoretical framework are evaluated to compare them with the evidence gathered from the fieldwork.

H1: There is a relationship between the functional value (quality/performance) of mobile telecommunications services and customer loyalty.

Functional value, understood as the value associated with the perceived quality or performance of mobile telecommunications services in Colombia, is found to have a significant positive relationship with customer loyalty. This conclusion is based on the positive path coefficient (0.213) and its confidence interval.

While a positive relationship is evident, the path coefficient does not support the claim that the relationship is strong. Nonetheless, the model indicates that this construct has a total effect of 21.3% on loyalty, which can be interpreted as having medium-low relevance.

H2: There is a relationship between the functional value (price) of mobile telecommunications services and customer loyalty.

Functional value, understood as the monetary value perceived by customers of mobile telecommunications services in Colombia, shows a significant positive relationship with customer loyalty. This is based on the positive path coefficient (0.148) and its confidence interval. Although a positive relationship is evident, the path coefficient does not support the assertion that this is a strong relationship between the constructs. Moreover, the relationship between functional value (price) and loyalty yielded the lowest result in terms of relevance, with the lower limit of the confidence interval being very close to 0. Despite this, the model indicates that this construct has a total effect of 14.8% on loyalty, which can be considered of low relevance.

H3: There is a relationship between the emotional value of mobile telecommunications services and customer loyalty.

Based on the statistical results of this research, it can be affirmed that the emotional value perceived by customers of mobile telecommunications services in Colombia has a significant positive relationship with customer loyalty. This is supported by the positive path coefficient (0.289) and its confidence interval.

While this construct showed the highest relevance in its relationship with loyalty, there is no evidence to suggest a strong relationship. Nevertheless, the model indicates that this construct has a total effect of 28.9% on loyalty, placing it between low and medium relevance.

H4: There is a relationship between the social value of mobile telecommunication services and customer loyalty.

Based on the statistical results of this research, it can be affirmed that the social value perceived by customers of mobile telecommunications services in Colombia has a significant positive relationship with customer loyalty. This is supported by the positive path coefficient (0.221) and its confidence interval.

Although a positive relationship is evident, the path coefficient does not provide enough support to assert that this is a strong relationship between the constructs. Nonetheless, the model indicates that this construct has a total effect of 22.1% on loyalty, which can be considered of medium-low relevance.

4. Discusión

Based on the results presented in the previous section and in line with the objective of this research, which aims to identify the relationship between loyalty and perceived value among mobile telecommunications customers in Colombia, it is observed that, according to the model proposed by Sweeney et al. (2001), there is a direct positive relationship between all dimensions of the value scale and loyalty in the country. The model evaluates perceived value across four dimensions, as applied in this study. In contrast to Aslam et al. (2018) in Pakistan, where functional value related to quality and performance, as well as social value, were found to be associated with loyalty, similar results were observed in Colombia. However, both studies conclude that emotional value and functional value associated with price have a positive relationship with customer loyalty in mobile telecommunications services in both countries. This finding contrasts with Deng et al. (2010, 2009), who found no evidence to support the relationship between functional value associated with price and loyalty, as well as Wang et al. (2004), who found no such relationship between these constructs in the Chinese market. The differences in the results observed across studies from various countries may align with the conclusions of Aksoy et al. (2013) and Jahanzeb et al. (2011), who suggest that the relationship between marketing constructs—such as value and loyalty—evaluated in mobile telecommunications services can be influenced by cultural or socioeconomic factors. This has important implications for marketing management, as these variables should be considered when defining specific strategies in each country's context. Consequently, by understanding the relationship between perceived value and loyalty, companies could allocate marketing resources to enhance customer-perceived value, thereby positively influencing loyalty. This approach could involve focusing efforts on improving a particular dimension of value that the telecommunications company identifies as weak in a target group or across its entire customer base.

This research provides an empirical foundation on which mobile telecommunications operators can build to better understand customer loyalty behavior. However, it is crucial for companies to identify the factors that enhance perceived value, ensuring that strategies aimed at increasing this perception are well-defined.

A key managerial implication, based on the order of impact on loyalty—emotional value being the most significant, followed by social value, performance, and finally price—is that mobile telecommunications services should focus on offering packages that, regardless of price, enable

customers to feel connected with themselves and those who are important to them. This directly affects performance, as meeting these emotional and social needs is not feasible without reliable service quality. From the users' perspective, price alone does not necessarily make a telecommunications company more competitive.

This research revealed certain limitations, which can serve as recommendations for future studies in the field of perceived value, loyalty, and telecommunications services. First, economic and time constraints prevented the selection of a random sample statistically representative of the Colombian population, potentially introducing bias due to the use of convenience sampling. Additionally, demographic and sociocultural factors may have influenced the results, making it worthwhile to explore these aspects further by focusing on specific population groups of interest in future research.

Additionally, future research could consider mediating variables between perceived value and loyalty, such as satisfaction. Chen (2019) identified a positive relationship between perceived value and loyalty with satisfaction as a mediating variable, and this relationship could be tested within the context of mobile telecommunications in Colombia. Furthermore, it would be valuable to evaluate loyalty in terms of both behavioral intentions and attitudinal loyalty, as suggested by Senić et al. (2014), to better understand the relationship between the dimensions of value and loyalty.

Finally, incorporating other constructs, such as trust, satisfaction, word-of-mouth, and perceived quality, could provide a more comprehensive explanation of customer loyalty, as these variables have been identified in the systematic literature review as closely related to loyalty.

As a concluding remark, a promising future direction for this line of research is to examine customer loyalty not only in terms of emotional value, social value, performance, and price, but also by considering different moments and stages of the customer journey. Additionally, it would be beneficial to explore generational differences in relation to the various services offered by telecommunications companies. Future studies could also compare these results across different market segments, such as B2B, to gain a more comprehensive understanding of customer loyalty in diverse contexts.

References

Akroush, M. N., Al-Mohammad, S. M., Zuriekat, M. I. And Abu-Lail, B. N. (2011). An empirical model of customer loyalty in the Jordanian Mobile Telecommunications Market. International Journal of Mobile Communications, 9(1). https://doi.org/10.1504/IJMC.2011.037956

Akroush, M. N. And Elsamen, A. A. (2012). An empirical investigation of the mediating role of relationship marketing skills on the relationship between customer satisfaction and customer loyalty. International Journal of Internet Marketing and Advertising, 7(1). https://doi.org/10.1504/IJIMA.2012.044956

Aksoy, L., Buoye, A., Aksoy, Larivière, B. And Keiningham, T. L. (2013). A Cross-national Investigation of the Satisfaction and Loyalty Linkage for Mobile Telecommunications Services across Eight Countries. Journal of Interactive Marketing, 27(1). https://doi.org/10.1016/j.intmar.2012.09.003

Al-Refaie, A., Jalham, I. S. And Li, M. H. C. (2012). Factors influencing the repurchase intention and customer satisfaction: A case of Jordanian telecom companies. International Journal of Productivity and Quality Management, 10(3), 374–387. https://doi.org/10.1504/IJPQM.2012.048754

Ali, R., Leifu, G., Yasirrafiq, M. And Hassan, M. (2015). Role of perceived value, customer expectation, corporate image and perceived service quality on the customer satisfaction. Journal of Applied Business Research, 31(4), 1425–1436.

Aslam, W., Arif, I., Farhat, K. And Khursheed, M. (2018). The role of customer trust, service quality and value dimensions in determining satisfaction and loyalty: An empirical study of mobile telecommunication industry in pakistan. Market-Trziste, 30(2), 177–194. https://doi.org/10.22598/mt/2018.30.2.177

Aydin, S. And Ozer, G. (2005). The analysis of antecedents of customer loyalty in the Turkish mobile telecommunication market. European Journal of Marketing, 39(7/8), 910–925. https://doi.org/10.1108/03090560510601833

Babin, B. J., Hair, J. F. and Boles, J. S. (2008). Publishing research in marketing journals using structural equation modeling. Journal of Marketing Theory and Practice, 16(4), 279–286. https://doi.org/10.2753/MTP1069-6679160401

Bamatraf, Y. G. And Rashid, T. (2020). Influence of Service Quality and Switching Barrier toward Customer Loyalty: A Study of Saudi Mobile Telecommunication Services. International Journal of Psychosocial Rehabilitation, 24(Special Issue 1), 134-141. https://doi.org/10.37200/ijpr/v24sp1/pr201142

Bhatti, H. S., Abareshi, A. And Pittayachawan, S. (2017). The analysis of antecedents of customer loyalty in the Australian mobile telecommunication market: Proceedings of the 14th International Joint Conference on e-Business and Telecommunications, 91-99. https://doi.org/10.5220/0006419100910099

Boateng, H., Kosiba, J. P., Adam, D. R., Ofori, K. S. And Okoe, A. F. (2020). Examining brand loyalty from an attachment theory perspective. Marketing Intelligence and Planning, 38(4), 479–494. https://doi.org/10.1108/MIP-03-2019-0161

Cambra, J., Melero, I. And Sese, F. J. (2012). Customer engagement: An exploratory study in the mobile communications industry. Universia Business Review, (33), 84–103.

Chang, P. K. And Chong, H. L. (2011). Customer satisfaction and loyalty on service provided by Malaysian telecommunication companies. In Proceedings of the 2011 International Conference on Electrical Engineering and Informatics (pp. 1-6). IEEE. https://doi.org/10.1109/ICEEI.2011.6021730

Chen, C. F. And Cheng, L. T. (2012). A study on mobile phone service loyalty in Taiwan. Total Quality Management and Business Excellence, 23(7–8), 807–819. https://doi.org/10.1080/14783363.2012.661129

Chen, C. M. (2019). The indirect effect of perceived value for the assessment of mobile service quality on customer loyalty. Journal of Quality, 26(5). https://doi.org/10.6220/joq.201910_26(5).0001

Chia-Hua, C. And Tho, N. X. (2018). The effect of service quality perception on two key manifestations of attitudinal loyalty. Journal of Behavioral Science, 13(1).

Chicaíza-Becerra, L., Riaño-Casallas, M. I., Rojas Berrio, S. P. And Garzón Santos, C. (2017). Revisión Sistemática de la Literatura en Administración. Documentos FCE - CID Escuela de Administración y Contaduría Pública (29), 1–18. https://doi.org/10.13140/RG.2.2.15345.89443

Chung, B. Do, Park, J. H., Koh, Y. J. And Lee, S. (2016). User Satisfaction and Retention of Mobile Telecommunications Services in Korea. International Journal of Human-Computer Interaction, 32(7). https://doi.org/10.1080/10447318.2016.1179083

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed). L. Erlbaum Associates.

Comisión de Regulación de Comunicaciones. (2022). Estudio de mercado de telecomunicaciones en Colombia. CRC.

Cunningham, R. M. (1956). Brand loyalty-what, where, how much? Harvard Business Review, 34(1).

D'alessandro, S., Johnson, L., Gray, D. M. And Carter, L. (2015). The market performance indicator: A macro understanding of service provider switching. Journal of Services Marketing, 29(4). https://doi.org/10.1108/JSM-05-2014-0172

DANE. (2018). ¿Cuántos somos? https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/censo-nacional-de-poblacion-y-vivenda-2018/cuantos-somos

Deng, Z., Lu, Y., Wei, K. K. And Zhang, J. (2010). Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. International Journal of Information Management, 30(4), 289–300. https://doi.org/10.1016/j.ijinfomgt.2009.10.001

Deng, Z., Zhang, J., Zhao, L., Lu, Y. And Wei, K. K. (2009). Customer satisfaction and loyalty of mobile services. In 2009 8th International Conference on Mobile Business (pp. 115–119). School of Management, Huazhong University of Science and Technology, Wuhan, China. https://doi.org/10.1109/ICMB.2009.27

Dick, A. S. And Basu, K. (1994). Customer loyalty: Toward an integrated conceptual framework. Journal of the Academy of Marketing Science, 22(2), 99–113. https://doi.org/10.1177/0092070394222001

Edward, M. (2011). Role of switching costs in the service quality, perceived value , customer satisfaction and customer retention linkage, 23(3), 327–345. https://doi.org/10.1108/13555851111143240

Eskafi, M., Hosseini, S. Hossein And Yazd, A. M. (2013). The value of telecom subscribers and customer relationship management. Business Process Management Journal, 19(4), 737–748. https://doi.org/10.1108/BPMJ-Feb-2012-0016

Fornell, C. and Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. Journal of Marketing Research, 18(3), 382. https://doi.org/10.2307/3150980

Fornell, C. And Wernerfelt, B. (1987). Defensive Marketing Strategy by Customer Complaint Management: A Theoretical Analysis. Journal of Marketing Research, 24(4), 337. https://doi.org/10.2307/3151381

Gerpott, T. J., Rams, W. and Schindler, A. (2001). Customer retention, loyalty, and satisfaction in the German mobile cellular telecommunications market. Telecommunications Policy, 25(4), 249–269. https://doi.org/10.1016/S0308-5961(00)00097-5

Gil, I. and Gonzalez, M. (2008). La investigación en valor percibido desde el marketing. Revista Innovar, 18(31).

Giovanis, A., Athanasopoulou, P. and Tsoukatos, E. (2016). The role of corporate image and switching barriers in the service evaluation process: Evidence from the mobile telecommunications industry. EuroMed Journal of Business, 11(1), 132–158. https://doi.org/10.1108/EMJB-01-2015-0002

Giovanis, A. and Tsoukatos, E. (2017). An integrated model of the effects of service evaluation, corporate image, and switching barriers on customer loyalty. Journal of Transnational Management, 22(1), 4–24. https://doi.org/10.1080/15475778.2017.1274612

GSMA Intelligence (2023). The Mobile Economy Latin America 2023. GSMA Intelligence.

Gupta, S. and Zeithaml, V. (2006). Customer metrics and their impact on financial performance. Marketing Science, 25(6), 718–739. https://doi.org/10.1287/mksc.1060.0221

Hadi, N. U., Aslam, N. And Gulzar, A. (2019). Sustainable service quality and customer loyalty: The role of customer satisfaction and switching costs in the Pakistan cellphone industry. Sustainability, 11(8), 2408. https://doi.org/10.3390/su11082408

Hair, J. F., Hult, G. T. M., Ringle, C. M. And Sarstedt, M. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). (Second edition). Sage.

Hair, J. F., Risher, J. J., Sarstedt, M. And Ringle, C. M. (2018). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24.

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

Hapsari, R., Hussein, A. S. And Handrito, R. P. (2020). Being Fair to Customers: A Strategy in Enhancing Customer Engagement and Loyalty in the Indonesia Mobile Telecommunication Industry. Services Marketing Quarterly, 41(1), 49–67. https://doi.org/10.1080/15332969.2019.1707375

Henseler, J., Ringle, C. M. and Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hernandez-Ortega, B., Aldas-Manzano, J., Ruiz-Mafe, C. And Sanz-Blas, S. (2017). Perceived value of advanced mobile messaging services: A cross-cultural comparison of Greek and Spanish users. Information Technology and People, 30(2), 324–355. https://doi.org/10.1108/ITP-01-2014-0017

Holbrook, M. B. (2002). Consumer Value | A Framework for Analysis and Research | Morris Holbro (1st Edition). Routledge. https://doi.org/10.4324/9780203010679

Huan, Z., Xu, X. and Li, H. (2005). The impact of service quality, satisfaction, value and switching barrier on customer loyalty in Chinese mobile telecommunication industry. In Proceedings of ICSSSM'05. 2005 International Conference on Services Systems and Services Management, 2005. (Vol. 1, pp. 217-222). IEEE. https://doi.org/10.1109/ICSSSM.2005.1499464

IWS. (2020). Internet World Stats. http://www.internetworldstats.com/stats.htm

Izogo, E. E. (2017). Customer loyalty in telecom service sector: The role of service quality and customer commitment. TQM Journal, 29(1). https://doi.org/10.1108/TQM-10-2014-0089

Jahanzeb, S., Fatima, T. And Khan, M. B. (2011). An empirical analysis of customer loyalty in Pakistan's telecommunication industry. Journal of Database Marketing and Customer Strategy Management, 18(1), 5-15. https://doi.org/10.1057/dbm.2011.2

Jia, S. And Yan, H. (2005). Empirical analysis on the forming model of customer loyalty: The case study of mobile communication service. In Proceedings of ICSSSM'05. 2005 International Conference on Services Systems and Services Management, 2005. (Vol. 1, pp. 133-137). IEEE. https://doi.org/10.1109/ICSSSM.2005.1499449

Karjaluoto, H., Jayawardhena, C., Leppäniemi, M. And Pihlström, M. (2012). How value and trust influence loyalty in wireless telecommunications industry. Telecommunications Policy, 36(8), 636–649. https://doi.org/10.1016/j.telpol.2012.04.012

Kaur, H. And Soch, H. (2012). Validating Antecedents of Customer Loyalty for Indian Cell Phone Users. Vikalpa, 37(4). https://doi.org/10.1177/0256090920120404

Kaur Sahi, G., Sambyal, R. And Sekhon, H. S. (2016). Analyzing Customers' Switching Intentions in the Telecom Sector. Journal of Global Marketing, 29(3). https://doi.org/10.1080/08911762.2016.1184736

Kaur, H. And Soch, H. (2018). Satisfaction, trust and loyalty: investigating the mediating effects of commitment, switching costs and corporate image. Journal of Asia Business Studies, 12(4). https://doi.org/10.1108/JABS-08-2015-0119

Kim, H. W., Chan, H. C. and Gupta, S. (2007). Value-based Adoption of Mobile Internet: An empirical investigation. Decision Support Systems, 43(1), 111–126. https://doi.org/10.1016/j.dss.2005.05.009

Kim, M. K., Park, M. C. And Jeong, D. H. (2004). The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services. Telecommunications Policy, 28(2). https://doi.org/10.1016/j.telpol.2003.12.003

Kim, M. K., Park, M. C., Park, J. H., Kim, J. And Kim, E. (2018). The role of multidimensional switching barriers on the cognitive and affective satisfaction-loyalty link in mobile communication services: Coupling in moderating effects. Computers in Human Behavior, 87, 212-223. https://doi.org/10.1016/j.chb.2018.05.024

Kim, M. K., Wong, S. F., Chang, Y. And Park, J. H. (2016). Determinants of customer loyalty in the Korean smartphone market: Moderating effects of usage characteristics. Telematics and Informatics, 33(4), 936–949. https://doi.org/10.1016/j.tele.2016.02.006

Kotler, P. And Amstrong, G. (2013). Fundamentos de Marketig. Prentice Hall. https://ebookcentral.proquest.com/lib/bupo-ebooks/reader.action?docID=3203809%0Ahttp://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:kotler+&+armstrong#0%5Cnhttp://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:-de+Kotler+y+Armstrong#5

Kumar, G. A., Ravi Kumar, A. And Pavithra, J. (2019). A customer satisfaction in mobile telecom industry in Chennai. International Journal of Recent Technology and Engineering, 8(2S8), 386-88. https://doi.org/10.35940/ijrte.B1392.0882S819

Lai, F., Griffin, M. And Babin, B. J. (2009). How quality, value, image, and satisfaction create loyalty at a Chinese telecom. Journal of Business Research, 62(10), 980–986. https://doi.org/10.1016/j.jbusres.2008.10.015

Lai, T. L. (2004). Service quality and perceived value's impact on satisfaction, intention and usage of short message service (SMS). Information Systems Frontiers, 6(4), 353-368. https://doi.org/10.1023/B:ISFI.0000046377.32617.3d

Lee, J. (2001). The impact of switching costs on the customer satisfaction-loyalty link: mobile phone service in France. Journal of services marketing, 15(1), 35–46.

Lee, J. W. (2011). Critical factors promoting customer loyalty to smartphone and mobile communications service providers. Academy of Marketing Studies Journal, 15(1), 59-69.

Lei, T. And Li, C. (2013). The comparative study of China's three major mobile operators customer satisfaction based on the customer perceived value. In 2013 8th International Conference on Computer Science & Education (pp. 855-858). IEEE. https://doi.org/10.1109/ICCSE.2013.6554029

Leong, L. Y., Hew, T. S., Ooi, K. B. And Lin, B. (2012). The determinants of customer loyalty in Malaysian mobile telecommunication services: a structural analysis. International Journal of Services, Economics and Management, 4(3), 209–235. https://doi.org/10.1504/IJSEM.2012.048620

Liang, T. P., Lai, C. Y., Hsu, Ting Peng Liang, C. Y. L., Hsieh, C. And Chiu, C. M. (2018). Factors Affecting Satisfaction and Brand Loyalty to Smartphone Systems: A Perceived Benefits Perspective. International Journal of Mobile Communications, 16(1). https://doi.org/10.1504/ijmc.2018.10006885

Lin, P. C. And Chiang, M. H. (2011). Service quality, service value, customer satisfaction and behavioural intentions of internet telephony. International Journal of Services, Technology and Management, 15(3–4), 261–280. https://doi.org/10.1504/IJSTM.2011.040379

Lin, Q., Wan, Y. And Pu, F. (2010). Study on customer loyalty and influential factors in mobile telecommunications. In 2010 International Conference on Management and Service Science, MASS 2010. https://doi.org/10.1109/ICMSS.2010.5577650

Liu, L. (2008). Study of the relationship between customer satisfaction and loyalty in telecom enterprise. In 2008 International Conference on Wireless Communications, Networking and Mobile Computing, WiCOM 2008. College of Economics and Management, Nanjing University of Posts and Telecommunications, Nanjing, China. https://doi.org/10.1109/WiCom.2008.2014

Malhotra, A. And Malhotra, C. K. (2013). Exploring switching behavior of US mobile service customers. Journal of Services Marketing, 27(1), 13–24. https://doi.org/10.1108/08876041311296347

Martins, R. C., Hor-Meyll, L. F. and Ferreira, J. B. (2013). Factors affecting mobile users' switching intentions: A comparative study between the Brazilian and German markets. BAR - Brazilian Administration Review, 10(3), 239–262. https://doi.org/10.1590/S1807-76922013000300002

Miao, R., Xu, F., Zhang, K. And Jiang, Z. (2014). Development of a multi-scale model for customer perceived value of electric vehicles. International Journal of Production Research, 52(16), 4820–4834. https://doi.org/10.1080/00207543.2014.890757

Ministerio de Tecnologías de la Información y las Comunicaciones (2023). Boletín trimestral de las TIC en Colombia. MinTIC.

Mishra, U. S., Praharaj, S. And Sahoo, D. (2016). Investigating the impact of service quality on customer satisfaction and loyalty: An empirical study in Indian telecom sector. International Journal of Applied Business and Economic Research, 14(6).

Moisescu, O. I. (2017). The moderating effects of demographics on the relationship between perceived CSR and brand loyalty in the mobile telecom sector. Society and Economy, 39(1). https://doi.org/10.1556/204.2017.39.1.6

Morgan, S. And Govender, K. (2017). Exploring customer loyalty in the South African mobile telecommunications sector. Cogent Business & Management, 7(1). https://doi.org/10.1080/23311975.2016.1273816

Negi, R. (2010). Determining satisfaction through customer-perceived service quality and value: Evidence from Ethiopian Telecommunications. International Journal of Services and Operations Management, 7(3), 333–350.https://doi.org/10.1504/IJSOM.2010.035056

Ngoma, M. And Ntale, P. D. (2019). Word of mouth communication: A mediator of relationship marketing and customer loyalty. Cogent Business and Management, 6(1). https://doi.org/10.1080/23311975.2019.1580123

Ofori, K. S., Boakye, K. And Narteh, B. (2018). Factors influencing consumer loyalty towards 3G mobile data service providers: evidence from Ghana. Total Quality Management and Business Excellence, 29(5–6). https://doi.org/10.1080/14783363.2016.1219654

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

Oliver, R. L. (1999). Whence Consumer Loyalty? Journal of marketing, 63(4), 33–44.

Ortegón, L., Wilches, M., Soledad, N. And Ayala, D. (2016). Exploración de atributos de valor percibido en operadores de telefonía móvil. Características and relaciones. Revista EAN, 80(2), 27–39. http://www.redalyc.org/articulo.oa?id=20645903003

Qayyum, A. And Khang, D. B. (2011). Investigating Switching Cost Roles in Determining Loyalty in the Mobile Telecommunications Market. International Journal of Customer Relationship Marketing and Management, 2(4), 1–16. https://doi.org/10.4018/jcrmm.2011100101

Qi, J. Y., Zhou, Y. P., Chen, W. J. And Qu, Q. X. (2012). Are customer satisfaction and customer loyalty drivers of customer lifetime value in mobile data services: A comparative cross-country study. Information Technology and Management, 13(4), 281–296. https://doi.org/10.1007/s10799-012-0132-y

Quoquab, F., Mohammad, J., Yasin, N. M. And Abdullah, N. L. (2018). Antecedents of switching intention in the mobile telecommunications industry: A partial least square approach. Asia Pacific Journal of Marketing and Logistics, 30(4). https://doi.org/10.1108/APJML-06-2017-0121

Rahul, T. And Majhi, R. (2014). An adaptive nonlinear approach for estimation of consumer satisfaction and loyalty in mobile phone sector of india. Journal of Retailing and Consumer Services, 21(4). https://doi.org/10.1016/j.jretconser.2014.03.009

Rajini, G. And Balaji, K. (2017). Retention of customer loyalty: Assessment of factors leading to mobile number portability. International Journal of Economic Research, 14(11).

Rizomyliotis, I., Poulis, A., Apostolos, G., Konstantoulaki, K. And Kostopoulos, I. (2020). Applying FCM to predict the behaviour of loyal customers in the mobile telecommunications industry. Journal of Strategic Marketing, 28(1), 1–15. https://doi.org/10.1080/0965254X.2018.1479720

Saleem, H. And Raja, N. S. (2014). The impact of service quality on customer satisfaction, customer loyalty and brand image: Evidence from hotel industry of Pakistan. Middle - East Journal of Scientific Research, 19(5). https://doi.org/10.5829/idosi.mejsr.2014.19.5.21018

Salhieh, S. M. (2019). Modeling the rationality of customers' switching mobile services behavior. International Journal of Engineering Business Management, 11. https://doi.org/10.1177/1847979019865411

Santouridis, I. And Trivellas, P. (2010). Investigating the impact of service quality and customer satisfaction on customer loyalty in mobile telephony in Greece. TQM Journal, 22(3). https://doi.org/10.1108/17542731011035550

Saroha, R. And Diwan, S. P. (2020). Development of an empirical framework of customer loyalty in the mobile telecommunications sector. Journal of Strategic Marketing, 28(8). https://doi.org/10.1080/0965254X.2019.1569110

Saunders, M., Lewis, P. And Thornhill, A. (2016). Research methods for business students (Seventh edition). Pearson Education.

Segarra-Moliner, J. R. and Moliner-Tena, M. Á. (2016). Customer equity and CLV in Spanish telecommunication services. Journal of Business Research, 69(10), 4694–4705. https://doi.org/10.1016/j.jbusres.2016.04.017

Senić, V. And Marinković, V. (2014). Examining the effect of different components of customer value on attitudinal loyalty and behavioral intentions. International Journal of Quality and Service Sciences, 6(2–3), 134–142. https://doi.org/10.1108/IJQSS-02-2014-0010

Shafei, I. And Tabaa, H. (2016). Factors affecting customer loyalty for mobile telecommunication industry. EuroMed Journal of Business, 11(3), 347–361. https://doi.org/10.1108/EMJB-07-2015-0034

Sharma, R. S. And Xiaoming, H. (2012). Value-based mobile data services adoption: General results of an on-going international study. International Journal of Technology, Knowledge and Society, 8(3), 135–150.

Sheth, J. N., Newman, B. I. And Gross, B. L. (1991). Why We Buy What We Buy: A Theory of Consumption Values. Journal of Business Research, 22(2), 159–170.

Shin, D. H. And Kim, W. Y. (2007). Mobile number portability on customer switching behavior: In the case of the Korean mobile market. Info, 9(4), 38–54. https://doi.org/10.1108/14636690710762129

Strenitzerová, M. And Gaňa, J. (2018). Customer satisfaction and loyalty as a part of customer-based corporate sustainability in the sector of mobile communications services. Sustainability: Science Practice and Policy, 10(5), 1657. https://doi.org/10.3390/su10051657

Svendsen, G. B. And Prebensen, N. K. (2013). The effect of brand on churn in the telecommunications sector. European Journal of Marketing, 47(8), 1177–1189. https://doi.org/10.1108/03090561311324273

Sweeney, J. And Soutar, G. (2001). Consumer perceived value: the development of a multiple item scale. Journal of Retailing, 77(2), 203–220. https://doi.org/10.1016/S0022-4359(01)00041-0

Tabaku, E. And Çerri, S. (2015). An Empirical Investigation of Customer Loyalty in Telecommunication Industry in Albania. Mediterranean Journal of Social Sciences, 6(1 S1) 224–224. https://doi.org/10.5901/mjss.2015.v6n1s1p224

Tarus, D. K. And Rabach, N. (2013). Determinants of customer loyalty in Kenya: Does corporate image play a moderating role? TQM Journal, 25(5), 473–491. https://doi.org/10.1108/TQM-11-2012-0102

Wang, Y. and Lo, H. P. (2004). An integrated framework for customer value and management performance: a customer-based perspective from China. Managing Service Quality, 14(2), 169–182. https://doi.org/10.1108/09604520410528590

Wen, C. H. And Hilmi, M. F. (2011). Exploring service quality, customer satisfaction and customer loyalty in the Malaysian mobile telecommunication industry. In 2011 IEEE Colloquium on Humanities, Science and Engineering (pp. 733–738). https://doi.org/10.1109/CHUSER.2011.6163832

Wong, A. And Zhou, L. (2006). Determinants and outcomes of relationship quality: a conceptual model and empirical investigation. Journal of International Consumer Marketing, 18(3), 81-105. https://doi.org/10.1300/J046v18n03

Woodruff, R. B. (1997). Customer Value: The Next Source for Competitive Advantage. Journal of the Academy of Marketing Science, 25(3), 256–256. https://doi.org/10.1177/0092070397253006

Yang, S. Q. (2015). Understanding B2B customer loyalty in the mobile telecommunication industry: A look at dedication and constraint. Journal of Business and Industrial Marketing, 30(2). https://doi.org/10.1108/JBIM-05-2013-0105

Yee, W. F., Ling, C. S. and Leong, L. K. (2015). Factors affecting customer loyalty in the telecommunications industry in the Klang Valley, Malaysia. Pertanika Journal of Social Science and Humanities, 23, 117-130.

Yen, Y. S. (2012). Exploring customer perceived value in mobile phone services. International Journal of Mobile Communications, 10(2), 213–229. https://doi.org/10.1504/IJMC.2012.045674

Yew, M. P. And Rahman, M. A. (2019). The mediating role of satisfaction in developing customer loyalty in the Malaysian Telecommunication Industry. Academy of Entrepreneurship Journal, 25, 1-12.

Yue, C. And Yue, Z. (2019). Measuring the satisfaction and loyalty of Chinese smartphone users: A simple symbol-based decision-making method. Scientia Iranica, 26(1), 589–604. https://doi.org/10.24200/sci.2018.3841.0

Zeithaml, V. A. (1988). Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. Journal of Marketing, 52(3), 2. https://doi.org/10.2307/1251446

Zhang, H., Lu, Y., Gupta, S., Zhao, L., Chen, A. And Huang, H. (2014). Understanding the antecedents of customer loyalty in the Chinese mobile service industry: A Push-Pull-Mooring framework. International Journal of Mobile Communications, 12(6). https://doi.org/10.1504IJMC.2014.064901