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TRUST AND SATISFACTION: THE KEYS TO CLIENT LOYALTY IN MOBILE COMMERCE

Introduction

Mobile phones have become a marketing instrument with a great potential for advertising, promoting interactivity with the consumer, and/or conducting transactions. The spread of mobile telephony worldwide, the steady increase in the number of mobile users around the world, and a forecast for the growth of mobile commerce (m-commerce), are evidence of its marketing appeal, in both academic and business contexts.

The possibilities offered by mobile phones as a marketing channel are increasing, even more so in emerging Latin American markets with high population densities of present and future m-consumers, and small business innovation (Ketelhöhn and Ogliastri, 2013). Ericsson's report (2015) on m-commerce in emerging markets indicates that an average of 18% of mobile phone users in these emerging markets have used their mobile phones to pay for products and services in the last year. In particular, in Latin America, the markets with the highest rate of development of m-commerce are Mexico, Argentina, and Brazil with an average of 21% of mobile phone users who pay for their purchases via mobile phones (in each market) and with a forecast growth of up to 50% of the total number of mobile telephony users (Ericsson, 2015). According to the data provided by the International Telecommunication Union (ITU, 2014), the use of mobile phones in Mexico (85.8%) has now surpassed the Internet use (43.5%).

In this context, the proliferation and diversification of the forms and channels of communication and marketing of products and services offered to multi-channel and multi-

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screen consumers (i.e., with a simultaneous use of physical, electronic and mobile formats for the same or different purpose) (Purita, 2013), have caused consumer loyalty to become increasingly difficult to achieve (Chung and Holdsworth 2012; Chang, 2015). As suggested by the Mexican Internet Association [AMIPCI (2014)], while 41% of buyers who make their purchases via mobile phones in Mexico are satisfied, one in three users are doubtful about purchasing via these devices. In this sense, knowledge of the different determinants that generate trust and loyalty in the case of a large sample of Mexican buyers will allow us to understand the determinants of buying-selling through mobile phones in a country with more than 50 million potential consumers and with a market value of 153 million euros (AMIPCI, 2014). Mobile phones or *smartphones* appear to be an essential marketing tool for companies in the Mexican market, and their great potential can be seen in the results of the AMIPCI (2014) study that indicate that 71% of consumers have searched for information on a given product or service, and 64% have compared prices using their mobile phones.

As such, the overall objective of this study is to propose a model to detect the key variables that allow for the creation of a long-lasting relationship between mobile phone customers and sellers in Mexico. This is an innovative project, given that very few empirical studies have so far been carried out on the behavior of loyal buying through mobile phones and the key factors associated to this behavior (e.g., Chang, 2015; Cyr et al., 2006; Lin and Wang, 2006).

This study specifically analyzes, from different theoretical perspectives, various direct and indirect key factors of customer loyalty in a mobile context: (1) The propensity to use new

information and communication technologies (ICTs), which is a factor widely analyzed in the literature on the Technology Acceptance Model by Davis et al. (1989) and the Diffusion of Innovation Theory (Rogers, 1995). This variable can be a personal determinant for trusting mobile transactions (Jeong et al., 2009; San-Martín and López-Catalán, 2013). (2) The opportunism, which due to its roots in Agency Theory and the Transaction Cost Theory, will be referred to as a transactional determinant of m-commerce (Williamson, 1975; Mayers and Smith, 1981; Akerlof, 1970; Mishra et al., 1998). And (3) satisfaction and trust, which derive originally from the approach of Relationship Marketing (Hunt et al., 2006) which are considered to be relational determinants of the expansion of m-commerce (Yeh and Li, 2009; Siau et al., 2003; Gu et al., 2009; Mallat, 2007).

As mentioned previously, the contributions of this research work are both academic and managerial. It seeks to determine the capacity of the personal, transactional, and relational factors in establishing long-lasting relationships through mobile phones in an emerging market (scarcely studied in previous literature). These factors include some that can have a positive effect (such as the propensity for new technologies) and others that can be seen as negative (such as the perception of opportunism). Indeed, the contribution of this work to previous literature on a current commercial phenomenon should be assessed in terms of the degree of m-commerce research development, which is still at an incipient stage. Although empirical studies on m-commerce have increased in recent years, they are still scarce in comparison to the habitual practice of mobile phone use by consumers.

Theoretical framework

Mobile commerce and consumer behavior

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M-commerce can be understood as any transaction that involves buying and/or selling any products or services with a monetary value through a mobile device using a Wi-Fi network (Wu and Wang, 2005; Alhinai et al., 2007; Morosan, 2014). In the marketing literature, studies that have observed the behavior of consumers in m-commerce environments, including in their analysis factors that encourage consumers to make purchases using mobile devices (Achadinha et al., 2014; Agrebi and Jallais, 2015; Chemingui and Ben lallouna, 2013; Chung and Holdsworth, 2012).

In this context, the interest to observe the factors that motivate or hinder the generation of loyalty to purchase via mobile phones has grown together with an increase in the peculiarities and differential aspects of the mobile channel. The main advantages associated with the use of mobile technologies, such as immediacy, ubiquity, flexibility, interaction, mobility, and personalization (Mort and Drennan, 2005; Deng et al., 2011; Morosan, 2014; Laukkanen and Pasanen, 2008; Zhang et al., 2013), are characteristics that are directly associated to the mobile channel. Thus, it is advisable to study the behavior of the mobile customer independently from that of customers using other channels (Chung and Holdsworth, 2012).

Opinions vary regarding the differentiation of the mobile channel with respect to other channels of purchase. For example, Jahanshahi et al. (2011) state that m-commerce can be considered an extension of e-commerce, distinguished by the ability to allow the user to perform all transactions with mobility. In contrast, Scornavacca et al. (2006) emphasize that m-commerce should be studied as a form of trade through mobile devices with unique benefits and not as a substitute for e-commerce.

In particular, the mobile channel is the only marketing channel that consumers carry with them everywhere they go. It could even be seen as an extension of the store or brand in the consumer's pocket. Although m-commerce offers similar advantages to e-commerce, such as saving time and money, comfort and convenience, variety and/or a larger range of options (Zhang et al., 2013), it shows unique characteristics that differentiate it from other media and marketing channels (Laukkanen and Pasanen, 2008; Zhang et al, 2013). Following Chan and Chong (2013, p. 443), m-commerce is defined "as any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and completed by using mobiles access to computer-mediated networks with the help of mobile devices".

Its potential to adapt to consumers is higher than what has been achieved with e-commerce. The main differences can be perceived in the intimacy reached in the relationship with the user, geolocation, and a constant disclosure of the needs and preferences of the user thanks to a permanent connection (Paavilainen, 2002). Ultimately, mobile phones allow for instant marketing operations (communication and commercialization) with users, which gives them a unique characteristic that distinguishes m-commerce from e-commerce (Zhang et al., 2013; Choi et al., 2008). Table 1 shows a review of previous studies that highlight the differential characteristics of m-commerce.

Table 1. Differences between m-commerce and e-commerce.

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Despite the unique benefits of m-commerce, factors such as complexity, mistrust, or perceived opportunism may block its development (Li and Yeh, 2010; Büttner et al., 2013; Chung and Holdsworth, 2012; Gross, 2015). According to Gummesson (2004), it is essential to study the trust and relationship developed over time between the consumer and the company. Nevertheless, in addition to offering new opportunities to innovate in business marketing strategies, mobile technologies involve the business risk of focusing on technological marketing systems that neglect the relational aspect. Ngai and Gunasekaran (2007) and Zhang et al. (2013) suggest that m-commerce is characterized by its ability to strengthen the relationship between consumers and businesses. These arguments help to emphasize the interest to propose conceptual models that include relational variables in the purchasing process through the mobile channel.

Regarding the relationship with consumers, loyalty can be considered the final stage of a relational process in which trust has been built and customer satisfaction has been achieved. The benefits of maintaining long-lasting relationships are perceived by both the firms and the customers, and the latter stop considering other alternatives (Harris and Goode, 2004). In fact, Chung and Holdsworth (2012) and Chang (2015) argue that building mobile consumers' loyalty is more important and more difficult than in other contexts. Loyalty is the degree to which a mobile consumer repetitively purchases from one given company, shows a positive attitude towards such company, and only considers that company or brand when having to make purchases (Chang, 2015). The benefits of company loyalty have been widely studied in the literature: repetitive purchases, a greater sales volume, a lower tendency to look for other alternatives, a lower sensitivity to price, and word-of-mouth recommendation (Dick and Basu, 1994; Reichheld et al. 2000; Chang and Fong, 2010).

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In this same context, recent literature on ICT and m-commerce points out that it is essential to study the particular role that trust and satisfaction play in the development of m-commerce, since their relationship with customer loyalty must be ratified (Lam and Shankar, 2014; Zhang et al., 2013; Zhao et al., 2016). In addition, Cruz et al. (2010) emphasize the interest of analyzing personal, transactional and relational variables that induce the permanence of mobile phones as a channel for purchasing goods in Latin American markets. Following this line of reasoning, we will first address the effect of the propensity to use information and communication technologies (ICTs) and opportunism in trust. Then we will take an in-depth look at the relational mechanisms (trust and satisfaction) that generate loyalty in mobile purchases.

Propensity to use ICTs in m-commerce

First, we must recognize the propensity to use ICTs as a key variable in the literature on the Technology Acceptance Model and the Diffusion of Innovation Theory (Davis et al., 1989; Rogers, 1995) and as a personal determinant when adopting m-commerce (Jeong et al., 2009; San-Martín and López-Catalán, 2013). Previous research has shown that the propensity to use ICTs and, in general, the willingness to adopt new technologies are factors that have contributed to the development of m-commerce (Agrebi and Jallais, 2015; Bruner and Kumar, 2005; Thakur and Srivastava, 2013; Zhou, 2011). Thakur and Srivastava (2013) suggest that the adoption of new technologies is not the same in developed countries—where this adoption has had sufficient time for its gradual evolution—as it is in developing countries, where the adoption of new technologies has been much more rapid and certain stages in the development of commerce have been

overseen by electronic means (i.e., commerce via mobile phones has already started to be implemented in emerging markets where e-commerce is still consolidating as a purchase channel).

In this specific context, empirical evidence has determined that adopting new technology is a determining factor in the acceptance of m-commerce (Liébana-Cabanillas et al., 2014; Khalifa and Shen, 2008; Cruz et al., 2010). In fact, the literature suggests that the acceptance of m-commerce is a reflection of the adoption of new technologies by consumers (Wu and Wang, 2005). However, it is interesting to note the big difference between the rates of mobile device usage and the rates of purchases via these devices. Despite the rapid adoption of mobile technology in the developing countries, the use of this technology for purchasing goods is subject to other relational factors, such as trust (Chemingui and Ben lallouna, 2013). Thus, it is necessary to find out whether the propensity to use ICTs implies not only a greater propensity to adopt technologies, but whether it can also bring about greater trust in the technologies themselves and the service provider, in comparison to those consumers who do not enjoy experimenting with technologies. As suggested by Agrebi and Jallais (2015), it is imperative to know how ICT use propensity influences the various relational stages of purchasing via mobile devices, including trust.

In this sense, individuals who are most prone to use technology feel less vulnerable to risk or insecurity (Wu and Wang 2005), and tend to trust the mobile purchasing process more. Thus, Carter and Bélanger (2005) suggest that higher levels of technology acceptance and diffusion of are necessary for users to trust a new purchasing channel. The influence of

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variables such as consumers' individual attitude, adoption and knowledge (i.e., propensity) towards technologies is widely recognized in the literature for promoting or disfavoring these same technologies when performing transactions, even via mobile devices (Grandón et al., 2011; Liao et al., 2008; Schierz et al., 2010). It is also possible to deduce the influence that ICT use propensity has on incrementing customer trust when purchasing via these channels.

Mort and Drennan (2005) suggest that individuals who are most prone to ICTs, use new technological channels (such as the mobile phone) to purchase goods earlier than individuals less prone to ICT use. Therefore, the propensity to use ICTs can be a positive factor in the development of trust. Thus,

H1: ICT use propensity increases m-customer trust.

Opportunism in the m-commerce

Second, according to the disadvantages in the mobile channel that can act as a barrier in the development of these same channels perceived by consumers (San-Martín, 2015), the perception of opportunism has been identified as one which can slow down the development of transactions that involve the use of technology (Chandra et al., 2010; Quereshi et al., 2009; Li and Yeh, 2010). This is likely to be the result of the virtuality of transactions via mobile phones, which can increase the perception of opportunistic behavior (Thakur and Srivastava, 2013).

Agency Theory and Transaction Cost Theory (Williamson, 1975; Mayers and Smith, 1981; Akerlof, 1970; Mishra et al., 1998) enriched the research on the relationships between businesses and consumers around the marketing channels (John, 1984), as is the case of mobile channels. Opportunism, originally defined as "self-interest seeking with guile" (Williamson, 1975, p. 6), arises when one of the parties finds it feasible and cost-effective to continue this behavior. In essence, under the previous definition, opportunism is seen as an explicit violation of a contract (Wathne and Heide, 2000).

In addition to the provisions of a contract, in a business relationship, there are a series of rules and informal agreements implemented by the participants (Hart and Moore, 1999; Heide and John, 1992; Wilson, 1980). That is why the vision of opportunism was then expanded to include violations of relational contracts (Wathne and Heide, 2000). Although opportunism may occur under any circumstance (Masten, 1988), there are certain conditions that make it more likely to happen. Possibly, asymmetries of information [where the ability of one of the parties to detect the opportunism is limited (Kirmani and Rao, 2000)] are the main reason behind one of the parties acting opportunistically (Kirmani and Rao, 2000; Mishra et al., 1998; Wathne and Heide, 2000). In this context, a buyer faces a problem of asymmetries of information under which it is difficult to distinguish the quality of the product/service offered by the seller, placing the former at a disadvantage against the latter (Akerlof, 1970).

When shopping via mobile devices, differences in information between the buyer and the seller could be even more pronounced, since the buyer faces a series of disadvantages that would not occur in an offline environment, such as: failure to touch and test the

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product/service, distrust in payment and transmission of personal information through these devices, lack of experience in purchasing via this channel, lack of knowledge, unstable Internet connections, among others (Gu et al. 2013; San-Martín, 2015). All of the above can transfer fear and a perception of opportunism to the customer in the context of m-commerce (Chemingui and Ben lallouna, 2013; Thakur and Srivastava, 2013).

Thus, this perceived uncertainty in m-commerce becomes an important factor that possibly hinders the development and maintenance of trust. Several studies have highlighted opportunism as a limiting factor for the development of trust in relationships (Mysen et al., 2011; Ting et al., 2007; Hsieh, 2013). In fact, opportunistic behaviors have been observed to lead to the dissolution of relationships due to a decrease in trust on the side of the consumer (Barney and Hansen, 1994; San-Martín, 2015).

Empirical research has provided evidence of the negative effect of opportunism on trust (Mysen et al., 2011; Hsieh, 2013); if the buyer perceives that the seller is being opportunistic in a m-commerce transaction, trust will be eroded and, as a result, the relationship might cease. Based on the above,

H2: Perceived opportunism reduces m-customer trust.

Satisfaction, trust, and loyalty in m-commerce

Third, the Relationship Marketing approach (Hunt et al., 2006) stresses the importance of achieving buyer satisfaction and trust in order to foster long-lasting relationships between consumers and firms in m-commerce (Lam and Shankar, 2014). Since a series of positive

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encounters increase consumer satisfaction and trust, the probabilities of consecutive purchases increase as well (Morgan and Hunt, 1994; Lee et al., 2015). Presumably, trust and satisfaction are key variables in the progress of m-commerce (Zhao et al., 2016; Chemingui and Ben lallouna, 2013; Groß, 2015; Yeh and Li, 2009; Gu et al., 2009; Mallat, 2007; Lin, 2011; Zarmpou et al., 2012; Yeh and Li, 2009). It is important to acknowledge the existence of different approaches to the interaction between satisfaction, trust, and loyalty (see Izogo, 2016; Ranaweera et al. 2005). Table 2 shows a review of previous literature on the mobile context.

Table 2. Previous literature regarding the studied relational variables in the mobile context

The concept of satisfaction implies the fulfillment of the expectations on the purchase as well as a positive emotional state based on the results of the purchase or maintenance of the relationship with the mobile seller (Agrebi and Jallais, 2015). The effects of satisfaction on consumer behavior are diverse and they go beyond the purchasing intention. For example, satisfaction is responsible for communication between consumers (word of mouth effect) (Eggert and Ulaga, 2002), and it is the pillar for building trust (Yeh and Li, 2009; Ribbink et al., 2004; Park and Stoel, 2005) and loyalty (Choi et al., 2008; Eggert and Ulaga, 2002).

In the specific context of m-commerce, despite being a relatively new and little studied purchasing channel, the constant growth in the number of m-buyers, makes us think about satisfaction as a determinant for the continuous relationships through this medium.

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Certainly, these consumers would not repeat a purchase via mobile devices unless they have been satisfied and they trust the seller (San-Martín and López-Catalán, 2013).

The particular characteristics of m-commerce (absence of tangible indicators, difficulty to evaluate the quality of the product/service and, therefore, possible perception of opportunism), emphasize the importance of generating reliable environments that lower the uncertainty levels associated with m-commerce (Yeh and Lin, 2009; San-Martín and López-Catalán, 2013), and highlight the relevance of studying the effect of satisfaction on trust in m-commerce (Thakur, 2014).

Empirical evidence on m-commerce suggests that there is a relationship between satisfaction and trust because previous positive experiences will allow for trade in the context of mobile purchases to be considered reliable (Yeh and Li, 2009; Lin and Wang, 2006; Lee et al., 2015; Lam and Shankar, 2014; Deng et al., 2010; Suki et al., 2012). Thus, more satisfied consumers will be willing to go from mere transactional exchanges to a more beneficial relationship based on trust (San-Martín and López-Catalán, 2013) and then to maintain this relationship in the long term (Zhou et al., 2010). In agreement with previous studies of buyers via mobile devices (Gupta et al., 2012; Yeh and Li, 2009), we propose that trust may derive from satisfaction in the mobile context. Hence,

H3: Satisfaction increases m-customer trust.

As mentioned previously, satisfaction is also one of the main backgrounds for loyalty in a mobile context (Lin and Wang, 2006; Deng et al., 2010; Lee et al., 2015; Zhou et al., 2010).

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Thakur (2014) says that satisfaction with the mobile channel as a means of making transactions has a positive influence on loyalty. Lam and Shankar (2014) suggest that this relationship may vary depending on the stage of m-commerce adoption the consumers are in. Thus, although to a lesser extent than the case of trust, satisfaction has been studied as a possible background for loyalty in m-commerce (Lin and Wang, 2006; Deng et al., 2010; Lam and Shankar, 2014; Chang, 2015; Lee et al., 2015) and for the willingness to continue buying in a mobile environment (Agrebi and Jallais, 2015). However, Chang (2015) points out that the specific role satisfaction plays in the development of loyalty to companies or brands still needs to be verified in different contexts. In this sense, Shankar et al. (2002, 2003) compared satisfaction in an offline context to satisfaction in an online context and found that the relationship between customer satisfaction and loyalty levels is higher in the online environment. In another study on online and mobile contexts, Choi et al. (2008) suggest that it is more difficult to obtain consumer satisfaction and loyalty in mobile contexts than it is in online contexts. They argue that this may happen due to the fact that mobile consumers are more demanding because of the existence of another electronic channel (i.e., the online) that serves as a benchmark to assess m-commerce.

It is likely that mobile consumers, who highly trust this marketing channel, engage in a long-lasting transactional relationship (Hoffman et al., 1999). In addition, customer trust of both the mobile technology and the sellers needs to be developed to give rise to mutually beneficial relationships in a mobile context (Siau et al., 2003; Lee et al., 2014; Chang, 2015). Trust has not only been one of the pillars for the development of m-commerce (Chan and Chong, 2013; Chemingui and Ben Lallouna, 2013; Cruz et al., 2010; Thakur, 2014),

but it is especially important before and after the buying process (Singh and Sirdeshmukh, 2000; Zhou et al., 2010).

If customers did not trust the companies, they would not place a first purchase, let alone subsequent purchases. In this specific case study, we deal with consumers who have already purchased by this means. After the first purchase, trust is partly responsible for consumers' commitment in making a second or third purchase (through this channel and with the same company) and, in general, of consistently repeating purchases. In other words, trust is an important determinant of loyalty (Singh and Sirdeshmukh, 2000; Garbarino and Johnson, 1999).

Although previous research, on varied marketing contexts, corroborate the positive influence of consumer trust in the repetition of purchases, willingness to recommend the seller, and loyalty (Gruen, 1995; Morgan and Hunt, 1994; Garbarino and Johnson, 1999; Anderson and Srinivasan, 2003; Harris and Goode, 2004; Ribbink et al., 2004; Liao et al., 2006; Lynch et al., 2001), in truth, there are scarce works on the antecedents of loyalty in mobile contexts (Lin and Wang, 2006; Liu et al., 2011; Zhou et al., 2010; Matzler et al., 2008). In this paper, we consider that both trust and satisfaction are key factors for achieving buyers' loyalty in the mobile context. Therefore,

H4: Satisfaction increases m-customer loyalty.

H5: Trust increases m-customer loyalty.

Methodology

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Field of study and measurement scales

Primary information was gathered through personal surveys addressed to 1053 m-buyers in Mexico. The information was collected from May to December 2013 with a response rate of 58.5% (1053 valid surveys of a total of 1800 attempts). A personal survey was conducted with individuals who possessed a mobile phone and who responded affirmatively to the filter question of having purchased a product or service using their mobile phone. The main socio-demographic profile of the sample is as follows: men (56%), between the ages of 18-34 (79.7%), more than half have university or some sort of professional qualification (61.7%), 45.7% work and 40.8% have a family (spouse and kids).

The scales used were five-point Likert-type (completely agree - totally disagree). We conducted a pre-test with thirty buyers and five experts on the introduction and development of technology businesses in order to verify understanding and to adapt the scales. In addition, in order to fulfill the validity of the contents, the scales used had been verified in previous literature (Steenkamp and Baumgartner, 1995). Specifically, the works of Ping (1993) and Wathne and Heide (2000) were considered for perception of opportunism; the works of Oliver (1980), Montoya-Weiss et al. (2003) and Harris and Goode (2004) for satisfaction; and the works of Goldsmith and Hofacker (1991) for ICT use propensity. The studies of Ganesan (1994), Jarvenpaa et al. (1999), and Harris and Goode (2004) were used as a reference for measuring trust; and finally the works of Harris and Goode (2004), Lynch et al. (2001), and Zeithaml et al. (1996) were used for loyalty. All the items used are described in Appendix 1.

Analysis and results

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Contrasting the hypotheses involved an estimation of the model using structural equations, a methodology widely accepted and applied in economic and social research (Baumgartner and Homburg, 1996) and especially suitable for the causal analysis of the relations between latent variables that are dependent in some equations and independent in others (Fornell, 1982). As stated by Jöreskog and Sörbom (1993), the maximum likelihood estimation process using the LISREL program is for a confirmatory factor analysis of the relationships between two unidirectional, recursive or direct dependency latent variables. According to Bagozzi and Yi (2012), recursive causality models, as opposed to non-recursive ones, make it possible to test the causality between the latent variables in studies of a cross-sectional nature, and are most appropriate when there are no longitudinal observations of the latent variables, as is the case in this study.

First, a preliminary uni- and bi-variant analysis of observable variables was conducted, which did not reveal significant abnormalities in the data. Scales were then studied to find their unidimensionality. The existence of the five measured factors and weights of the variables that measured 0.4 or more in all cases was confirmed by an exploratory factor analysis. Second, a confirmatory factor analysis was made using the LISREL program that determined the convergent and discriminant validity of the measurement model and definitive scales were obtained. The results of the adjusted and re-specified model and the resulting variables are shown in Table 3 (V4 and V25 observable variables were removed since they possessed a low R^2). The reliability of the final scales was corroborated with the values of the alpha cronbach coefficient, the coefficient of composite reliability and average variance extracted (approximate to 0.50, 0.60, and 0.70 respectively) (Bagozzi and Yi, 1988). In terms of the discriminant validity of the latent variables, the results show that

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the root of the variance extracted in all cases is superior to the correlations between constructs (Table 3 and Table 4).

Table 3. Results of EFA and CFA analyses.

Table 4. Correlation matrix.

Finally, the global structural model, the goodness of fit indexes, and the degree of significance of each of the proposed scenarios were estimated using the methodology of structural equations (Figure 1).

Figure 1. Structural model (partial mediation model)
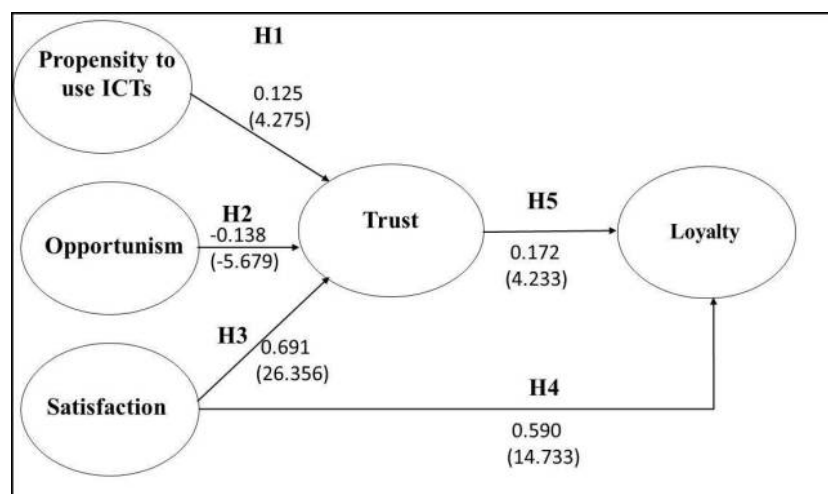
$\chi 2$=1761.8 (p=0.00); RMSEA=0.06; NFI=0.97; CFI=0.98; IFI=0.98; RFI=0.97; GFI=0.90

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Once the measurement model was validated with acceptable adjusted goodness of fit indices, the results of the structural model allowed us to corroborate hypothesis H1, as the propensity to use ICTs is a variable that increases consumer trust ($\lambda = 0.125$, $p < 0.00$). It was also possible to corroborate that perceived opportunism by the consumer reduces trust, which proves hypothesis H2 ($\lambda = -0.138$, $p < 0.00$). Hypothesis H3 ($\lambda = 0.691$, $p < 0.00$) corroborates that satisfaction increases trust. Finally, hypotheses H4 and H5 ($\lambda = 0.590$, $p < 0.00$ and $\lambda = 0.172$, $p < 0.00$, respectively) also corroborated that satisfaction and trust are precedents of consumer loyalty to purchasing via a mobile channel.

Next, an alternative model was tested, which proposed an effect of total mediation of trust in the model (see Figure 2). Although acceptable, goodness of fit indices were worse here than those in the partial mediation model.

Figure 2. Alternative structural model (total mediation model)
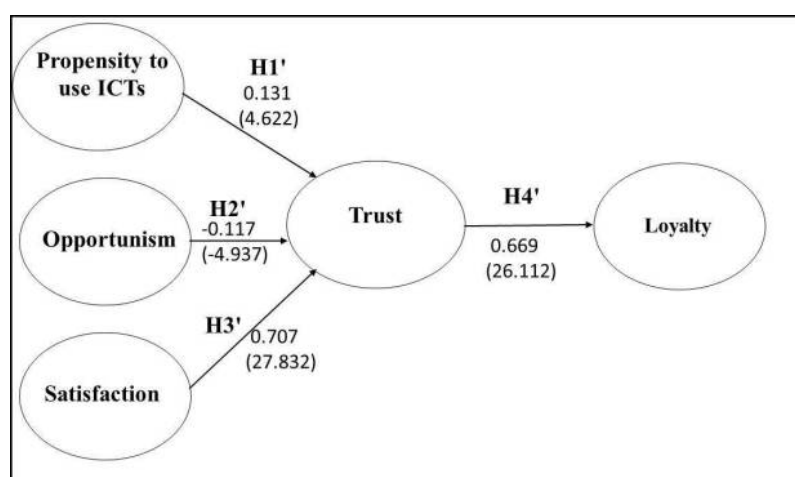
$\chi2=1957.9$ ($p=0.00$); RMSEA=0.07; NFI=0.97; CFI=0.97; IFI=0.97; RFI=0.97; GFI=0.89

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According to Baron and Kenny (1986) and Qureshi et al. (2009), in order to test a mediating effect, after controlling for the mediator variable, the effect of the predictor variables on the dependent variable must lose strength and a comparison between the restricted model (controlling the mediator variable) and the unrestricted model (not controlling the mediator variable) should show a weakness in the goodness of fit indexes. Thus, according to the procedure described by Baron and Kenny (1986) and James and Brett (1984), if the effect of the mediator (trust) is controlled, the effect of the independent variables (opportunism, ICT use propensity, and satisfaction) on the dependent variable (loyalty) is reduced, and the goodness of fit of the restricted models is worse than the levels of the proposed mediation models (Baron and Kenny 1986). Table 5 shows the comparison of the tested models.

Table 5. Mediator effect: comparison of models

The Sobel, Aroian and Goodman tests were carried out in the post-hoc mediation analysis, indicating the effect of the mediation of trust between ICT use propensity, opportunism, satisfaction, and loyalty (Preacher and Leonardelli, 2001). Table 6 shows the results of the Sobel, Aroian and Goodman tests.

Table 6. Mediator effect

The comparative results of the partial and total models suggest that trust has a partial mediator effect on the model. The direct and notoriously high effect of satisfaction on

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loyalty cannot be denied compared to the indirect effect of satisfaction on loyalty through trust. However, it does exert a significant mediation on the effect of ICT use propensity and opportunism on loyalty.

Conclusions

Increasing access to mobile phones, their differential characteristics with respect to other purchasing means such as the computer, and opportunities for the growth of commerce through these devices have attracted the attention of marketing professionals. However, as far as we know, there are, as yet, very few works that clearly address the determinants of m-commerce and the way these interact with the relational mechanisms in the target channel of this study.

This work provides empirical evidence of the different kinds of factors (personal, transactional and relational) affecting the mobile buyer-seller relationship, including the study of variables scarcely addressed in the existing literature, such as the perception of opportunism. In this way, we look at factors that exert a positive and motivating effect on trust and loyalty, as well as another, opportunism, which exerts a negative impact on trust and loyalty, while most studies focus on the motivating aspects of loyalty (Zhou et al., 2010; Chang, 2015; Thakur, 2014; De Reuver et al., 2015; Lee et al., 2015). Our results suggest that the propensity to use technology significantly and positively affects the perceived trust; the greater the tendency to use, enjoy and experiment with new technologies, the greater the degree of consumer trust when purchasing via mobile devices, in turn, increasing the loyalty to mobile technology as a marketing channel. On the other hand, the perception of opportunistic behavior significantly reduces trust in the mobile

context, and it can finally prevent the generation of loyalty. This negative effect of opportunism on trust, in spite of having been proposed in only a few studies (Mysen et al., 2011 and Hsieh, 2013), is extremely interesting for markets such as the one analyzed here, where m-commerce has a great potential.

The results indicate that higher levels of satisfaction in m-commerce increase the perceived trust of the seller that uses mobile devices to sell her product. This satisfaction-trust relationship confirms the results found by Gupta et al. (2012), Suki et al. (2012) and Yeh and Li (2009) and contradicts alternative findings such as the ones proposed by Lin and Wang (2006) and Deng et al. (2010) with information collected from web pages and mobile phone users. In this line, we understand that once the buyer is satisfied with the purchases made via her mobile phone, her willingness to trust the m-seller will increase.

This research work also identifies two relational ways to increase loyalty in m-commerce. Zhou et al. (2010); De Reuver et al. (2015), Lin and Wang (2006) and Liu et al. (2011) agree that trust is a key variable in the development of m-commerce and the generation of consumer loyalty. Satisfaction also manifests as a powerful stimulant of consumer loyalty as stated by Chang (2015). In fact, given that trust has a partial mediator effect, satisfaction is revealed as the most effective determinant to increase consumer loyalty. As such, companies should focus their efforts on keeping their mobile buyers satisfied in order to increase reliability and generate long-lasting relationships through the mobile channel.

Indirectly, this work contributes to the evidence on the mediating role of trust. As Preacher and Hayes (2008) suggest, the mediating role of a variable explains nuances, which cannot

be explained by causal relationships. In this sense, the post-hoc analysis in this work shows that satisfaction (relational variable) exerts a positive influence on trust (Yeh and Li, 2009), while perceived opportunism (transactional variable) influences trust negatively and, as such, diminishes it (Chung and Jin, 2011; Mysen et al., 2011); the propensity to use ICTs (personal variable) is a determinant factor for the development of trust (Wu and Wang, 2005) and, finally, loyalty in mobile contexts. As a result of the above, trust is a central variable in the process of the relationship between the mobile consumer and the mobile seller (Morgan and Hunt, 1994), but its mediating role is partial. Coinciding with the study of Lam and Shankar (2014), satisfaction provides a decisive background of trust and loyalty for users regardless of their level of mobile technology adoption, as long as the preliminary stages in the adoption of m-commerce (as in the case of individuals who repurchase via mobile devices) have already been consolidated.

Thus, our results suggest that trust generated by greater ICT use propensity and a lower perception of opportunism, in the stages of mobile purchasing behavior consolidation, can be considered a "hygiene" factor, whereby consumer loyalty can no longer be positively affected once these initial stages have already been developed and trust established. Moreover, satisfaction can be a motivating factor, which encourages habitual m-buyers to want to maintain a lasting relationship with the seller.

Our results, as well as those of other previous studies (Chang, 2015; Lee et al., 2015; Lam and Shankar, 2014), suggest that satisfaction can be key in ensuring that customers trust and maintain relationships with the company via mobile devices. In contrast, allowing the appearance of the most negative factor affecting mobile relations—perceived

opportunism—would indirectly diminish the possibilities of establishing a more beneficial and long-lasting relationship between the buyer and the seller, by increasing the customer's reluctance to be vulnerable in a mobile context. Such a negative effect can be compensated by increasing trust in buyers who like to experiment with ICTs and therefore will be more likely to repeat their purchases via a mobile device.

The results offer interesting managerial implications to marketing leaders. They show, for example, the central role played by satisfaction and trust in an increasingly competitive world, where customer retention and loyalty is crucial for companies that want to stay in the mobile market, as suggested by Lee et al. (2015). Companies need to focus their efforts on keeping current customers happy and can increase their market by reducing opportunistic behaviors and generating greater trust in the users who are most likely to use ICTs. The mobile market is maturing and, as Lam and Shankar (2014) suggest, business strategies may be applied depending on the target market's stage of m-commerce adoption.

Perceived trust increases the desire to repeat a purchase through these devices, leading to long-lasting commercial relationships. As such, companies should try to be honest, not to deceive their customers, to fulfill their promises, to highlight their reliability as vendors and honestly care for customer expectations. According to Constantinescu et al. (2014), trusting the mobile context can constitute a mechanism that guarantees the existence of reciprocity in mobile commercial relationships from a technological and social perspective. In this sense, the fact that companies use mechanisms such as reputation or monetary compensation in the event of non-compliance can be very useful. In addition, designing strategies that increase the propensity to use mobile technologies as a channel for

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consumption becomes relevant, especially those aimed to increase ease of use, to highlight the differential benefits of this medium (i.e., ubiquity), and to invest in designs that can be customized by the consumers themselves (Li and Yeh, 2010).

Currently, companies wishing to maintain their market share in the mobile context can use mobile marketing tools for signaling quality and good work in this mobile channel (e.g. an AMIPCI reliability certificate, security and privacy, or payment guarantees) in order to reduce perceived opportunism and increase the levels of trust. In addition, companies can segment their market to focus on users with a greater propensity for ICTs, in developed stages of the buying process and adoption of m-commerce, as this will be the potential market of loyal and profitable customers.

Despite their importance, these results should be considered with caution as the sample is limited to Mexico and the specific context of m-commerce. We cannot assume that this behavior replicates in other economies or countries. In addition, the effect of demographic variables is not controlled and segments are not differentiated by consumers' personal characteristics (such as the propensity to use ICTs). Another limitation is the non-inclusion of external factors relating to the company (such as reputation) to compare the incidence of the signs of quality that enterprises send to the market with personal and relational factors which we have addressed in this study as a background for customer trust, satisfaction and loyalty in the mobile context. In addition, future research should contrast alternative hypotheses among the variables that influence consumer behavior in the mobile context, and the dynamic effects between relational variables. Finally, it would be advisable to investigate the relationship between ICT use propensity, perceived opportunism, and trust

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throughout the relationship, from the adoption of technology to the maintenance of the relationship and repurchasing.

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Biographical Details

Nadia Jiménez, PhD. Lecturer and researcher in Marketing at the University of Burgos (Spain). Her current research areas include international marketing, relationship marketing, consumer behaviour and electronic commerce. She has written a book, several book chapters and has published in national and international journals such as the International Business Review, Cross Cultural Management: An International Journal, International Journal of Business and Management, Journal of Business & Industrial Marketing and Electronic Markets.

Sonia San-Martín, PhD. Lecturer and researcher in Marketing at the University of Burgos (Spain). Her current research areas include contractual approach and marketing, relationship marketing, consumer behaviour and electronic commerce. She has written a book, several book chapters and has published in national and international journals such as International Business Review, Journal of Services Marketing, Online Information Review, Electronic Commerce Research and Applications, Psychology & Marketing, Industrial Management and Data Systems, Cyberpsychology and Behaviour and Personnel Review.

José Ignacio Azuela is professor at the Universidad Autónoma de Tamaulipas (México) and CEO of OPTO, firm dedicated to research on the consumer behaviour of. José Ignacio is a member of the National System of Researchers and has several publications in national and international journals.

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Table 1. Differences between m-commerce and e-commerce.

This table 1 presents a comparative review of each specific commerce's characteristics mentioned in previous studies.

m-commerce	e-commerce	Authors of reference
High ubiquity.	**Low ubiquity.**	Groß (2015); Gu et al. (2013); Holmes et al. (2013)
Fewer space to show information (Screen between 5" and 9", depending on device).	**More space to show information** (Screen of 14" or more generally).	Adipat et al. (2011); Ghose et al. (2013)
Relatively greater effort in the process of searching for information.	**Relatively less effort in the process of searching for information.**	Adipat et al. (2011); Ghose et al. (2013)
Slower and less stable Internet connection [Internet access via cellular networks such as GSM (Global System for Mobile Communications), CDMA (Code Division Multiple Access), WCDMA (Wide Band Code Division Multiple Access) or Wi-Fi].	**Faster and more stable Internet connection** (Internet access through Internet by cable or Wi-Fi).	Gu et al. (2013)
Increased costs associated with its use (Perception of different levels of Internet connection fees).	**Lower costs associated with its use** (Relatively more standardized levels of Internet connection fees).	Choi et al. (2008)
Transaction and user mobility (In vehicles, buses, walking, running, etc.).	**Transaction at static environments** (At home, office, etc.).	Gu et al. (2013)
Further customization (The mobile is a personal tool).	**Less customization** (The computer is a personal or corporate tool).	Choi et al. (2008)
Access to a wider target.	**Access to a more restricted target.**	Liébana-Cabanillas et al. (2014)

Table 2. Previous literature regarding the studied relational variables in the mobile context

This table 2 presents a summary review of previous studies that which analyzed the relations between relational variables in the mobile context in different contexts. Each arrow represents the proposed and/or tested relationship between variables.

Authors	Study subjects /Country	Proposed relationships
Matzler et al. (2008)	Mobile phone users / Australia	Trust → Loyalty (attitudinal and behavioral) Risk aversion → Trust (mediator) → Loyalty (attitudinal and behavioral)
Yeh and Li (2009)	Students with previous experience in m-commerce / Taiwan	Satisfaction → Trust
Zhou et al. (2010)	Students with experience using social networking through mobile phones / China	Trust → Loyalty
Gupta et al. (2012)	Users of m-commerce / India	Satisfaction → Trust

Suki et al. (2012)	Students/ Malaysia	Satisfaction → Trust
Lam and Shankar (2014)	Mobile phone users in different stages of adopting mobile technology / Singapore	Satisfaction → Trust (significant for laggard and pioneer users) Satisfaction → Loyalty (significant for laggard users) Trust in brand competence → Loyalty (more important for laggard users than for pioneer users) Trust in brand benevolence → Loyalty (more important for pioneer users than for laggard users)
Chang (2015)	Users of mobile applications / Asia	Satisfaction → Loyalty
Thakur (2014)	Mobile banking users / India	Satisfaction → Loyalty Trust → Loyalty
De Reuver et al. (2015)	Smartphone owners / Germany	Trust → Loyalty
Lee et al. (2015)	Mobile phone users / South Korea	Satisfaction → Trust Trust → Loyalty Satisfaction → Loyalty

Table 3. Results of EFA and CFA analyses.

This table 3 presents the standardized coefficients of the adjusted exploratory (EFA) and confirmatory (CFA) factor analysis. Asterisks *, **, and *** indicate levels of significance of 10%, 5%, and 1%, respectively. Notation: λ: Lambda coefficient; AVE: average variance extracted; CR: composite reliability; α: Cronbach's alpha. Model specification was based on the following indexes: chi-square statistic ($\chi 2$), Root-Mean-Square-Error of Approximation (RMSEA), Normed Fit Index (NFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI), Relative Fit Index (RFI) and Goodness-of-Fit Index (GFI).

Latent Variable	Observed variable	Coefficients			R^2	α	CR	AVE
		Coefficient of saturation	λ	t-statistic value				
Trust	V1	0.737	0.854***	38.88	0.698			
	V2	0.717	0.881***	42.09	0.748			
	V3	0.704	0.840***	20.03	0.656			
	V4		Deleted			0.919	0.942	0.701
	V5	0.683	1.000	-	0.651			
	V6	0.679	0.843***	35.45	0.638			
	V7	0.668	0.808***	35.14	0.633			
	V8	0.658	0.783***	33.59	0.604			
Satisfaction	V9	0.712	0.839***	38.22	0.661			
	V10	0.707	0.862***	36.31	0.630			
	V11	0.675	0.838***	35.12	0.610			
	V12	0.675	1.000	-	0.738	0.931	0.948	0.724
	V13	0.671	0.860***	37.04	0.642			
	V14	0.669	0.821***	36.10	0.627			
	V15	0.666	0.800***	35.81	0.622			
Opportunism	V16	0.833	0.780***	32.49	0.588			
	V17	0.832	0.925***	37.66	0.688			
	V18	0.816	0.970***	37.78	0.684	0.904	0.933	0.738
	V19	0.805	1.000	-	0.685			
	V20	0.724	0.955***	26.24	0.457			
Loyalty	V21	0.735	0.820***	31.77	0.564			
	V22	0.657	1.000	-	0.730	0.871	0.910	0.672
	V23	0.577	0.884***	41.37	0.753			

	V24	0.571	0.856***	42.94	0.784		
	V25		Deleted				
	V26	0.540	0.689***	39.16	0.695		
Propensity to use ICTs	V27	0.761	0.903***	32.39	0.683		
	V28	0.732	0.740***	25.97	0.500	0.803	0.868	0.690
	V29	0.655	1.000	-	0.726		
Goodness of fit indexes	$\chi2$=1862.57 (p=0.00); RMSEA=0.05; NFI=0.97; CFI=0.98; IFI=0.98; RFI=0.97; GFI=0.90						

Table 4. Correlation matrix.

This table 4 presents the correlation between latent variables. Elements in bold at the main diagonal show the square root of the Average Variance Extracted (AVE).

	1	2	3	4	5
1. Trust	**0.837**				
2. Satisfaction	0.811	**0.850**			
3. Opportunism	-0.197	-0.165	**0.859**		
4. Loyalty	0.582	0.840	0.010	**0.819**	
5. Propensity to use ICTs	0.495	0.478	0.129	0.423	**0.830**

Table 5. Mediator effect: comparison of models

This table 5 presents comparative statics results for five tested models and their goodness of fit indexes. The arrows represent the proposed and tested paths. Specifically, the base model including all the direct as well as indirect paths. Then it is tested a partial mediation model and a total mediation model. Also, the restricted model (1) was created by constraining the effect of the mediator variable and it tests the effect between antecedents and dependent final variable and; the restricted model (2) was created by constraining the effect of the mediator variable on the dependent final variable and it tests the effect between antecedents and mediator variable. Asterisks *, **, and *** indicate levels of significance of 10%, 5%, and 1%, respectively. Notation: Lambda coefficient (λ); chi-square statistic ($\chi2$), Root-Mean-Square-Error of Approximation (RMSEA), Normed Fit Index (NFI), Comparative Fit Index (CFI), Incremental Fit Index (IFI), Relative Fit Index (RFI) and Goodness-of-Fit Index (GFI).

Path	Base model λ	Model (1) λ	Model (2) λ	Partial mediation model	Total mediation model
Satisfaction→ Loyalty	0.552***	0.601***	-	0.590***	-
Opportunism→ Loyalty	0.148***	0.120***	-		-
Propensity to use ICTs→ Loyalty	0.083**	0.109***	-		-
Trust→ Loyalty	0.203***	-	-	0.172***	0.669***
Satisfaction→Trust	0.689***	-	0.698***	0.691***	0.707***
Opportunism→Trust	-0.134***	-	-0.131***	-0.138***	-0.117***
Propensity to use ICTs→ Trust	0.129***	-	0.127***	0.125***	0.131***
Goodness of fit indexes	$\chi2$ (p-value)	1711.36 (p=0.0)	1735.35 (p=0.0)	1735.35 (p=0.0)	1761.8 (p=0.00)	1957.9 (p=0.00)
	RMSEA	0.07	0.07	0.07	0.06	0.07

NFI	0.97	0.97	0.97	0.97	0.97
CFI	0.98	0.97	0.98	0.98	0.97
IFI	0.98	0.98	0.98	0.98	0.97
RFI	0.97	0.97	0.97	0.97	0.97
GFI	0.88	0.87	0.88	0.90	0.89

Table 6. Mediator effect

This table 6 presents Sobel, Aroian and Goodman tests.

	Sobel		Aroian		Goodman	
	Test	p-value	Test	p-value	Test	p-value
Satisfaction → Trust → Loyalty	19.14	0.000	19.13	0.000	19.14	0.000
Opportunism → Trust → Loyalty	−5.09	0.000	−5.08	0.000	−5.09	0.000
Propensity to use ICTs → Trust → Loyalty	4.89	0.000	4.88	0.000	4.89	0.000

Appendix 1

Observed variable code	Item
V1	Belief that companies/websites/mobile platforms will fulfill its promise.
V2	Belief that the information provided by the companies/websites/mobile platforms is honest.
V3	Belief that the companies/websites/mobile platforms are reliable.
V4	Companies/websites/mobile platforms never make false claims.
V5	Companies/websites/mobile platforms are characterized by sincerity and transparency by providing their services.
V6	Belief that the companies/websites/mobile platforms are concerned about the interests of their clients.
V7	Belief that the behavior of the companies/websites/mobile platforms is ethical.
V8	When designing the commercial offer, the companies/websites/mobile platforms consider the wishes and needs of its customers.
V9	Belief that consumer has made the right decision when purchasing via cell phone.
V10	Belief that they have met their expectations of purchase through the cell phone.
V11	Satisfaction with the shopping experience by cell phone.
V12	Satisfaction with the way it has handled the purchase by phone.
V13	Satisfaction with the products / services purchased by cell phone.
V14	Satisfaction with the information received on the purchase by cell phone.
V15	Satisfaction with purchasing through cell phone.
V16	Perceived need to control the companies/websites/mobile platforms to fulfill the agreement.

V17	Perception that the companies/websites/mobile platforms, seek only their own interests, even affecting the client's interest.
V18	Suspicion that companies/websites/mobile platforms can hide relevant information to the customer.
V19	Belief that the companies/websites/mobile platforms avoid their responsibilities.
V20	Belief that the companies/websites/mobile platforms breached certain obligations if it would make a profit.
V21	Intends to continue making purchases by cell phone companies/websites/mobile platforms, although the price is high.
V22	Intends to continue buying a cell phone, rather than in other media (eg. Catalog, supermarket, etc.).
V23	Desire to repeat purchases by cell phone when the opportunity arises.
V24	Intended to recommend the purchase by cell phone to anyone who asks me for advice.
V25	Recognition to discuss with friends and family about satisfaction with the purchase by cell phone.
V26	Intention to defend the positive aspects of buying a cell phone if someone criticized.
V27	Claims persistently seek new information technologies to experience it.
V28	Claim to be the first to try new information technologies in the group of friends and family membership.
V29	Pleasure in experimenting with new information technologies.