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Trust and information quality for client satisfaction and loyalty in e-Banking using cellular telephone

Confianza y calidad de la información para la satisfacción y lealtad del cliente en el e-Banking con el uso del teléfono celular

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Abstract

Electronic banking (e-Banking) has been advancing fast during the last few years due to Internet growth and the massive use of cellular telephones. Consumers force the banking industry to generate strategies to attract that business model. This research aims to acknowledge the trust and information quality affecting e-Banking clients satisfaction and loyalty. The methodology applied is based on a questionnaire to 240 customers in northeastern Mexico. The inferential analysis was done with SmartPLS. The main results shown trust and perceived usefulness directly impact technology adoption. The principal factor is that the use of cellular telephones substantially influences e-Banking clients satisfaction and loyalty.

JEL Code: C10, M10, M15
Keywords: e-Banking; cellular telephone; satisfaction; trust; perceived usefulness

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Resumen

La banca electrónica (e-Banking) ha avanzado en los últimos años debido al desarrollo de Internet y al uso masivo de teléfonos celulares por los consumidores que obligan a la industria bancaria a generar estrategias para este mercado que se abre a sus modelos de negocios. El objetivo de esta investigación es determinar cómo la confiabilidad y la calidad de la información influyen en la satisfacción y lealtad de los clientes del e-Banking cuando lo operan por medio del teléfono celular. El método consiste en la administración de un cuestionario a 240 clientes en el noreste de México que operan alguna aplicación informática de la banca comercial y el análisis inferencial con SmartPLS. Los resultados muestran que la confianza y la utilidad percibida impactan al uso de esta tecnología. La aportación trascendental es que el uso cuenta con una influencia sustancial en la satisfacción y lealtad de los clientes del e-Banking.

Código JEL: C10, M10, M15
Palabras clave: e-Banking; teléfono celular; satisfacción; confianza; utilidad percibida

Introduction

Until no more than a decade ago, in financial services the client was traditionalist, seeking personal interaction with bank employees; nevertheless, information technology (IT) continues to grow and a need to focus on clients has arisen, with this being the main factor to remain and progress in every industry, whereby banks are expected to respond to this client-oriented environment with new business models, procedures, and IT (George, 2018).

The National Banking and Securities Commission (CNBV, 2020) (Spanish: Comisión Nacional Bancaria y de Valores) of Mexico reports that there was a decrease in the number of interbank transfers or to the same bank, going from 162% to 147% as a percentage of GDP in the fourth quarter of 2018. Thus, the digital divide in access to financial services is becoming an essential factor for its harmonious development, but at the same time, an opportunity to use technology in the form of electronic banking (e-Banking) and satisfy consumers and meet their financial information needs.

According to Avendaño (2018), electronic banking, first telephone banking and then mobile banking, will displace typical paper banking and personal service. It has been a slow but steady process in a win-win model for both banks and consumers. The latter require the banking industry to provide efficient access to their resources through branches, the Internet, and smartphones and to apply new technologies such as virtual money, artificial intelligence, banking personalization, voice assistants, data analysis, and efficient decision-making.

E-Banking is also known as online banking, Internet banking, and mobile banking (m-Banking). The main competitive advantages it presents are that one can connect from anywhere in the world at any time to pay bills, transfer money, manage current accounts (Ataya & Ali, 2019), reduce operational costs,

improve client banking services, expand client engagement (Lichtenstein & Williamson, 2006), and perform banking tasks faster, and error avoidance could be a source of individual performance (Longstreet et al., 2016).

To this end, there are several technologies; to mention a few: Samsung Pay, Apple Pay, Google Pay, e-Wallet, and PayPal. As described above, e-Banking is defined as all those banking activities and transactions that can be performed from anywhere and at any time from an electronic device (cellular tele phone or cell phone, computer, tablet, Smart TV) connected to the Internet, in which there is no physical or virtual contact with the banking staff. In turn, e-Banking opened opportunities for criminals and fraudsters to abuse them in their social, cyber, and physical worlds (Barker, 2018). Even so, some elements directly influence their acceptance, such as satisfaction, perceived usefulness, perceived risk, ease of use, cost, trust, security, and privacy.

A simple and consolidated theory that supports e-Banking is difficult to find. Normally, analyses are made in voluntary environments, with the idea that e-Banking's installation and use is optional, seen as a need to make the clients' time more efficient. Nevertheless, theories and models have been applied that are the basis of and an area of opportunity for the consolidation of this field of informatics since they evaluate how users make use of and accept/reject IT. Among the principal models are: Technology Acceptance Model (TAM and its variants TAM2, TAM3), DeLone and McLean's Information Systems Success Model (D&M), Task Technology Fit (TTF), Unified Theory of Acceptance and Use of Technology (UTAUT) and UTAUT2; and among the theories are: Theory of Reasoned Action (TRA), Theory of Perceived Risk (TPR), Self-Efficacy Theory, Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), and Theory of Planned Behavior (TPB).

Despite the growth of the cell phone industry, e-Banking has remained the same as banks would like as a business. In Mexico, the setting of this research, people prefer personal contact via telephone and Automated Teller Machines (ATMs). In addition, there are some prevailing barriers in the country, such as poor telecommunications infrastructure, high costs of implementation, lack of 100% computer security, poor technological culture of citizens, and distrust in financial institutions.

Undoubtedly, e-Banking, as a computer information system, is a reality in this technological revolution called the Internet. Its evaluation is a basic aspect that can help determine its efficiency within organizations, wherein users can value it as an opportunity or threat (Bhattacherjee et al., 2018) and recognize that e-Banking has implementation costs but these decrease in the long term and profitability increases (Shahabi & Razi, 2019). There are many ways to evaluate or apply models or theories of the characteristics of e-Banking. According to the review of the state of the art, TAM is the most used for these tasks; for this reason, its core is taken as a basis. Accordingly, this research aims to determine the

influence of Trust and Information Quality on the Satisfaction and Loyalty of the clients when they use e-Banking through their cell phones.

To achieve the goal, the literature that will serve as the basis for the data collection instrument is reviewed and applied to e-Banking clients, and with the help of the statistical tool SmartPLS based on Structural Equation Modeling, a research model is evaluated to define the acceptance or rejection of hypotheses and define the contributions to knowledge that stem from its analysis. The results are expected to contribute to the reduction of the knowledge gap both for the banking industry by revealing the needs of users, especially in terms of information, and for users by gaining their confidence in IT, which is the main problem in the world (Shree et al., 2021), to satisfy them with its use and make them loyal clients and return to electronic banking.

Review of the literature

Trust

There is no universal definition of trust as it depends on the context and the clients' attitudes and perceptions of the efficient responsiveness of e-Banking. The main challenge for the banking system is to ensure that the information stored on its web servers inspires sufficient trust in the clients during their financial transactions and eliminates the need to enter personal payment data in every transaction (Boonsiritomachai & Pitchayadejanant, 2019), as trust has been listed as one of the primary factors affecting the performance and success of any economic industry, and is decisive in the adoption of e-services, where it directly influences client loyalty toward e-banking and is essential for establishing a long-term relation between clients and suppliers (Hong & Cho, 2011). As pointed out by Carminati et al. (2015), it is also true that Internet banking frauds are difficult to detect as there are large, unbalanced data sets (Web logs, transaction records, expenditure profiles). Thus, banking institutions should improve the security features of their e-Banking systems for their clients (Anouze & Alamro, 2019) and monitor fraudulent and atypical transactions to ensure trust in them.

The cultural aspect has an impact on trust in e-Banking. Barker (2018) considers that it should be considered for future strategies for adopting mobile banking, regardless of the cultural environment, contrary to Yu and Asgarkhani (2015), who argue that the influential factors in building trust vary according to consumers and cultures. Consequently, strategies to generate trust have been devised that substantially improve this situation, such as fingerprints, facial scanning, eye recognition, and computer antiviruses (Ataya & Ali, 2019).

Trust is considered the engine of e-Banking. The analysis performed here fills a gap, as it is an antecedent of TAM, hence its importance in spreading meeting points for future work directly affecting its perceived usefulness and ease of use.

Information quality

Technological advances have contributed to the growth of the business environment and the improvement of banking capabilities (Boateng et al., 2016) precisely because they model the clients' intention to adopt services and the evaluation of the quality of a website, which, being multidimensional, involves the comprehensive assessment of the information system (system, services, and information).

After more than two decades of research and practice, it is difficult to find a technique to measure the quality of IT products in their business processes, and like other variables in the IT domain, information quality has been defined as a complex construct in which studies have found it to be one of the main focuses of satisfaction and intention to use mobile banking (Sharma & Sharma, 2019). Ramos et al. (2007) consider it as accessible, contextual, credible, and understandable. This research will use the measurement of DeLone and McLean (2003), who evaluate it as accurate, timely, complete, relevant, and consistent.

Likewise, the information quality has effects on the intention of continuity of mobile data services and with it to e-Banking; moreover, according to Wang (2016), the information quality is mostly appreciated in the usefulness perceived by regular consumers of technologies, and Ayyash (2017) found that the accuracy, completeness, timeliness, and relevance of information had a positive effect on the client's satisfaction with e-banking services.

Information is an essential part of any technology. With cell phones, the possibilities are vast, from the simplest of finding a bank branch or an ATM to operating transfers and merchant investments. Nevertheless, Redman (1998) also points out some impacts resulting from problems, such as client dissatisfaction, increased operating costs, less effective decision-making, and a reduced ability to produce and execute organizational strategy.

The information quality has been the subject of years of research within information systems. Today, the aim is to confirm or reject the idea that it is an element that directly and indirectly influences the satisfaction and loyalty of clients when they carry out their financial transactions electronically.

Perceived usefulness

Perceived usefulness is the degree to which a person believes using a particular information system will improve their job performance (Davis, 1989). Nevertheless, it is uselessly perceived as often having a stronger relation with the intended use of the technology or computer system concerning its ease of use (Mansou et al., 2016); its evaluation is, therefore, necessary in order to increase the positive cases of perceived usefulness of the website that count on quality (Wang, 2016).

It has been shown that usability is one of the main reasons clients adopt mobile electronic systems and perform banking transactions, coupled with security, enabling a positive perception of its usefulness (Asadi et al., 2017). Nonetheless, some analyses contradict the positive effect of perceived usefulness, pointing out that it does not affect the intention to use e-Banking and has no explanatory power (Muñoz-Leiva et al., 2017).

Perceived usefulness has been proposed as an intermediation of the TAM between the main independent and dependent variables. Therefore, its theoretical and empirical value will impact any research model in a predictive and not only causal way.

Ease of use

Various studies have found that the market generally accepts cutting-edge technologies when they are easy to use. In e-Banking, clients can easily deposit, access, transfer, and withdraw their money and are assured of continued ownership (Asadi et al., 2017). Anderson and Srinivasan (2003) suggest that client satisfaction is due to the website's features (ease of use), as it is the main interface with the company. Likewise, with the help of cell phones, financial services should be more easily accessible through a click on the screen, as clients seek banks that provide easily accessible services (Amin, 2016). On the opposite side, it is stated that users will only continuously use mobile banking if it is easy to use (Yuan et al., 2016).

Based on the above, banking transactions on the Internet may seem complicated and intimidating to many clients, so ease of use is a must, as mobile banking clients are highly influenced by the benefits obtained, but more precisely by the ease of use.

Technological evolution has made new technologies easier to operate; nevertheless, not all clients understand and like technology, and there are still technological developments not designed for end users, so this variable is a critical point in the use or non-use of electronic banking.

Usage

Usage is the behavior of employing technology to carry out activities, in this case, financial transactions. The adoption and use of e-Banking by clients vary from one social group to another. It has relevance in the cultural environment in which they operate, where attitude mainly determines the intended use of cell phone applications, discarding utility and risk as factors that directly enhance their use (Muñoz-Leiva et al., 2017). Similarly, perceived ease of use determines information system use in an organization (Davis et al., 1989). Trust is crucial in the behavioral intention to adopt a technology (Sharma & Sharma, 2019).

E-Banking can provide third-party services and other products; in particular, Goi and Ng (2011) found that young clients who use cell phones have a positive perception of the use of mobile commerce applications, attracted mainly by what Kuo et al. (2009) call a positive relation between client satisfaction and post-purchase repurchase, i.e., continuous use.

When clients have little or no choice about which IT system to use or how much to use, it is misleading to measure their frequency or amount of use as the dependent variable or to explore predictors of such use (Bhattacherjee et al., 2018). Nevertheless, cell phone use to access banking services was optional in this research. It is seen as a tool to optimize clients' activities. On the other hand, contrary results have also been found, such as that the direct effect of perceived ease of use for continuance intention is not significant (Yuan et al., 2016) and that cell phone use is related to privacy violation and phishing threats.

Several factors influence clients' acceptance and use of e-Banking, including communication and convenience (Oruç & Tatar, 2017), performance expectation, social influence, perceived credibility, and appropriateness of technological tasks (Tarhini et al., 2016), but of particular interest is the fact that there is a strong relation between the intention to use e-banking services and the client's satisfaction with these services (Ayyash, 2017).

An investment in technology that is not used is a bad investment; it is an expense when a greater investment in electronic banking can increase online clients, which increases the bank's revenue (Shahabi & Razi, 2019). For this reason, IT technicians and bank managers must check and publicize the e-Banking tool to operate efficiently by the clients.

Satisfaction

DeLone and McLean (2003) claim that satisfaction is preceded by use in a process sense, but in an informal sense satisfaction is achieved through a positive technological experience. In this study,

satisfaction can be defined as the psychological state of well-being that the client perceives when performing financial transactions in e-Banking through a cell phone.

Since banks have invested large sums of money in technological infrastructure, client satisfaction is a critical success factor in e-Banking to generate and maintain their competitive advantage. Accordingly, and in agreement with Tarhini et al. (2016), banking institutions should improve the quality of their e-banking system according to clients' suggestions and meet their expectations and needs, even up to an advanced and interactive interface (Kim et al., 2009) for the willingness to use online banking services more frequently. Another important aspect between clients and e-Banking is the employees, who, with a spirit of innovation implemented in the institution, can improve their competence, operational efficiency, and productivity, resulting in a service that offers responsiveness and client satisfaction (Yaw & Boachie, 2018).

Likewise, the security of e-Banking services is paramount for banks to improve client satisfaction and maintain their intention to use them. Satisfaction has been the most widely used dependent variable in the IT area, and fortunately, as it is a complex, multidisciplinary element, and because it deals with perceptions in its analysis, its various aspects allow new contributions to knowledge to be generated, hence its study.

Loyalty

Clients' behavioral loyalty reflects their emotional and psychological state to repurchase and recommend to others (Wong & Zhou, 2006). In Internet banking, Anderson and Srinivasan (2003) defined e-client loyalty as the tendency to continue to use a specific Web site, visit it frequently, and show high site loyalty with long browsing time. Client loyalty is defined as the tendency of the consumer to visit the website frequently, make regular use of the services, and spread positive word-of-mouth about e-Banking (Amin, 2016).

Clients are changing to e-Banking, so their retention is the goal of every banking institution, as it is the source of its survival. Therefore, client loyalty to the institution is an important part and one of the factors to increase it. To this end, the impact of service quality on customer loyalty has been studied in other electronic contexts (Kim et al., 2009). Still, these are different from e-Banking because of the implications it entails. Therefore, banks must devise adequate marketing schemes tailored to their clients to ensure their loyalty and offer accurate services. Other studies add that they are fast, convenient, reduce transaction costs (Johnson et al., 2018), and offer them additional advantages such as time savings and ease of banking transactions, which can retain more e-Banking users (Tam & Oliveira, 2019), and a good

measure is profiling for efficient segmentation of clients to gain their loyalty and satisfaction (Dawood et al., 2019).

Loyalty has been extensively studied in the marketing area. Now, it is necessary to transfer it to information technologies explicitly. Its analysis is useful for generating action plans and relevant decision-making.

After reviewing the literature on the variables involved, the following are the working hypotheses to be tested with the field study and statistical analysis:

- H_1: The client's trust in e-Banking using cell phones is a key element in generating perceived usefulness.
- H_2: The client's confidence in e-Banking using cell phones is essential in perceiving their ease of use of this technology.
- H_3: The information quality generated in the e-Banking using cell phones enables the perception of its usefulness.
- H_4: The information quality generated in e-Banking using cell phones permits the perception of the ease of use of this technology.
- H_5: The perceived usefulness of e-Banking using cell phones leads to greater use of this technological tool.
- H_6: The ease of use of e-Banking using cell phones allows for greater use of this technological tool.
- H_7: Continued use of e-Banking using cell phones creates client satisfaction.
- H_8: The continuous use of e-Banking using cell phones generates client loyalty toward the banking institution.

Method

E-Banking is the next step in the IT revolution. It is expected to become the main means for financial transactions between clients, companies, banks, and the government shortly. For this reason, it is necessary to carry out scientific research in this area of technology.

This research focuses on people as clients in their daily lives and not on the business or technical side (software and hardware) through an exploratory empirical study conducted in the northeastern Mexican state of Tamaulipas, based on the main structure of the Technology Acceptance Model (TAM) that has been used to evaluate websites and has been explored in several areas related to computer science, psychology, and organizational behavior (Peng-yu & Xiao-xiao, 2017). Variables analyzed in other

research (trust, information quality, satisfaction, and client loyalty) are added to this model and form the cornerstone of this work.

The research subjects are those people who have used e-Banking via cell phone for at least six months, clients with some experience in its operation, and those who can provide information for the definition of business strategies, in the understanding that of the 62.2 million Mexicans with a cell phone, 51% have a bank account, and of them, 22% use e-Banking (INEGI, 2018) (Spanish: Instituto Nacional de Estadística y Geografía). This is undoubtedly a market to explore and generate a win-win virtuous circle.

To achieve the proposed objective, the state of the art was reviewed to lay the foundations for the operationalization of the variables:

- Trust: security, reliability, and privacy
- Information quality: accurate, up-to-date, timely, relevant, and understandable
- Perceived usefulness: speed, time-saving, useful data, and user-friendliness
- Ease of use: easy, flexible, interaction, and navigation
- Usage: timely information, consistent use, and preferred choice
- Satisfaction: positive feedback, bank preference, positive action, and accurate information
- Loyalty: continued use, goodwill, loyalty, and recommendation

Based on the established variables, a structured questionnaire was devised and was then evaluated by three academics and two clients of this technology, and with their suggestions, the recommended adjustments were made. Following a pilot study of 35 clients of e-Banking to evaluate the questionnaire in terms of wording, simplicity, comprehension, importance, and response time, the results suggested the elimination of 3 items (IQ5, UPer4, and Sat5) that did not reach the minimum required reliability and the modification of 6 items that were not understood in the reading of the questionnaire. A 7-point Likert-type scale was used (1. Strongly Disagree ... 7. Strongly Agree).

The final instrument was applied in the state of Tamaulipas (Mexico) in three of its main cities, Matamoros, Victoria, and Tampico, using a convenience sample between April to June 2020, limited by the COVID-19 pandemic, which resulted in 240 valid questionnaires through Google Forms. In the application process, clients were informed that the data provided would be treated confidentially and only used for academic and research purposes.

First of all, the descriptive study was developed, followed by the inferential analysis using the SmartPLS software (Ringle et al., 2015) with 5000 subsamples, which is a sample generation process performed internally by the PLS software and is the value recommended by the experts, and part of the validation of the instrument, to obtain the indexes required for the acceptance or rejection of hypotheses:

factor loadings, explained variance (R^2), standardized path coefficients (β), t-statistic, Cronbach's alpha, rho_A, composite reliability, Average Variance Extracted (AVE), and effect size (f^2).

Results and discussion

The findings indicate that most clients are female (60%), and the rest are male (40%). Concerning age, as expected, it is young people who use this technology the most: 20 years old or younger (7%), 21 to 30 years old (31%), 31 to 40 years old (26.5%), 41 to 50 years old (26.5%), and 51 years old and older (11%). Regarding the segments gained by the main banks: Santander (48.5%), BBVA (21.1%), Banorte (15.6%), Banamex (5.1%), HSBC (4.6%), and others (5.1%). As for the main transactions conducted, the following stand out: checking cash balances (85%), transfers to other banks (67.5%), transfers to other accounts in the same bank (62.5%), transfers between the client's accounts (54.5%), payments for services (41%), credit card payments (37.5%), cash withdrawals without a card (16%), and investment funds (3.8%).

The inference analysis is performed with SmartPLS 3, which is a second-generation statistical tool suitable for information technology research, carried out in two stages (Hair et al., 2019): a) Measurement Model and b) Structural Model:

a. Measurement model alidation

- Item reliability is assessed by examining the loadings (λ) or simple correlations. Each indicator must have at least .707 (λ^2, 50% of the variance is explained) (Chin, 1998). 27 reflective items show acceptable values (Table 1, Column 1), the loadings range between .737 and .958, exceeding the recommended minimums, and only one item of the variable Use is in the limits (.690) but feasible in exploratory research.
- Composite Reliability (Internal Consistency): measured with Cronbach's alpha (.700) and the Fornell and Larcker (1981) statistic of .707. Table 1 (Columns 4 and 5) indicates that this validation is relevant to the research.
- Convergent Validation: analyzed through AVE, with minimum required values of .50 (at least 50% of the construct's variance comprises its items) (Fornell & Larcker, 1981). Applicable exclusively to reflective indicators, this research presents them as such. Table 1 (Column 6) shows that the values exceed the minimum accepted, fluctuating between .693 and .859. Resampling (5000 subsamples) was performed to generate a t-statistic. Table 3 (Column 3) shows the data obtained to decide on the acceptance or rejection of the proposed hypotheses.

- Discriminant validation: Fornell and Larcker (1981) criteria are used for this evaluation. Table 2 shows that the inter-construct condition is met. Similarly, the Dijkstra-Henseler indicator (rho_A), which must be greater than .700, is used, and Table 1 (Column 4) details the values that exceed the recommended minimums.

Table 1
Item construct and individual item reliability

Construct: Items with factor loadings	R^2	Cronbach's alpha	rho_A	Composite Reliability	AVE
Trust: Tru1 (.900), Tru2 (.896), Tru3 (.737), Tru4 (.911)	Not Applicable	.887	.923	.921	.747
Information Quality: IQ1 (.881), IQ2 (.876), IQ3 (.858), IQ4 (.818)	Not Applicable	.881	.885	.918	.737
Perceived usefulness: UPer1 (.875), UPer2 (.850), UPer3 (.882), UPer4 (.862)	.604	.890	.892	.924	.752
Ease of use: EOU1 (.842), EOU2 (.910), EOU3 (.927), EOU4 (.921)	.523	.922	.930	.945	.811
Usage: Use1 (.690), Use2 (.874), Use3 (.872), Use4 (.879)	.636	.850	.868	.900	.693
Loyalty Loy1 (.907), Loy2 (.958), Loy3 (.923), Loy4 (.920)	.641	.945	.947	.961	.859
Satisfaction Sat1 (.911), Sat2 (.869), Sat3 (.943), Sat4 (.921)	.666	.932	.938	.951	.830

Source: created by the authors

Table 2
Correlation of variables (discriminant validity)

	IQ	Conf	EOU	Loyal	Sat	Usage	UPer
Information Quality (IQ)	.858						
Trust (Conf)	.562	.864					
Ease of Use (EOU)	.596	.674	.901				
Loyalty (Loyal)	.602	.659	.663	.927			
Satisfaction (Sat)	.633	.649	.685	.904	.911		
Usage	.726	.647	.688	.801	.816	.833	
Perceived Usefulness (UPer)	.694	.680	.791	.703	.758	.791	.867

Note: Data in diagonal is the square root of AVE between the construct and its measures. These data must be greater than those in the same row and column (inter-construct) for discriminant validity.

b. Validation of the structural model

This validation requires two basic indices: a) the standardized path coefficients (β), identified in the PLS graph -nomogram- using the relations linking the constructs in the internal model, and b) the explained variance (R^2) that provides an indicator of the predictivity of the independent variables. According to Chin (1998), β should reach at least a value of .2 and ideally be above .3, and R^2 with .67 has a substantial effect, .33 moderate, and .19 weak. Also, the significance (p-value) must be less than .05 ($p<.05$). For the effect size (f^2), Cohen (1988) points out that it evaluates the level at which an exogenous variable contributes to the explanation of an endogenous variable in terms of R^2 and the minimum value required is .02.

Table 3 summarizes the eight hypotheses proposed according to the state-of-the-art review and evaluated with the statistical work performed. Likewise, Figure 1 shows the research model estimated and includes the items that make up each variable and their factor loadings, as shown in Table 1.

Table 3
Inferential results with SmartPLS

Hypothesis	Path coefficient (β)	T-statistic	f^2	Sig.	Comment
H_1. Trust → Perceived Usefulness	.424 ***	6.596	.312	.000	Accepted
H_2. Trust → Ease of Use	.495 ***	7.829	.351	.000	Accepted
H_3. Information Quality → Perceived Usefulness	.455 ***	7.170	.358	.000	Accepted
H_4. Information Quality → Ease of Use	.318 ***	4.947	.145	.000	Accepted
H_5. Perceived Usefulness → Usage	.658 ***	7.211	.446	.000	Accepted
H_6. Ease of Use → Usage	.168 *	1.923	.029	.027	Accepted
H_7. Usage → Satisfaction	.816 ***	18.779	1.99	.000	Accepted
H_8. Usage → Loyalty	.801 ***	17.771	1.79	.000	Accepted

Source: created by the authors

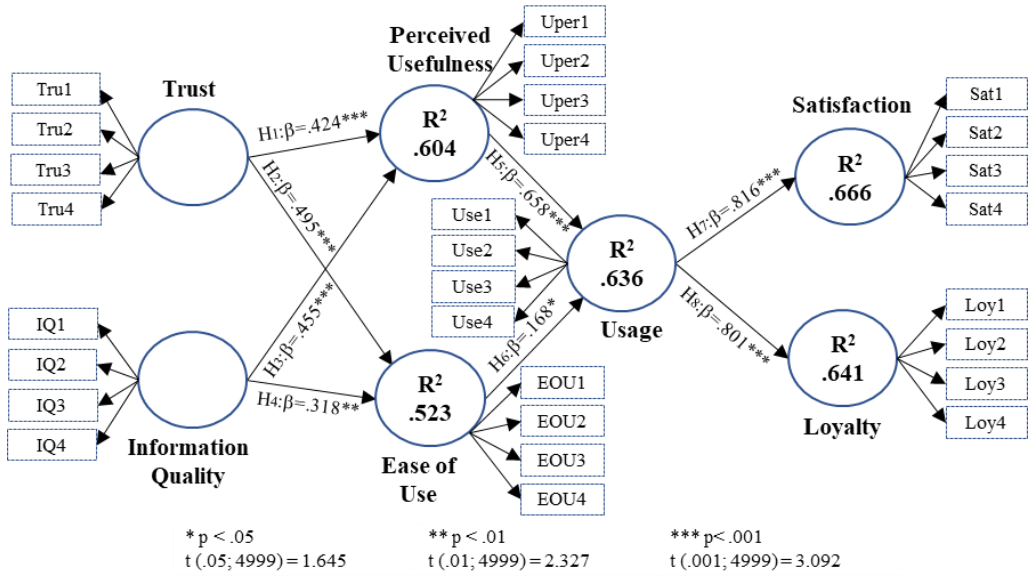

Figure 1. Research model evaluated
Source: created by the authors

The data shown in Table 3 detail the approval of the eight hypotheses proposed, all of which have higher values in the relation coefficients (β), t-statistic, and significance (sig./p-value), validating the model with a considerable predictive level and an average of 65.3% of the variance explained by the dependent variables. Similarly, the route with the greatest impact is Trust→Perceived Usefulness, but with special emphasis on Usage, which directly affects the Satisfaction and Loyalty of e-Banking clients.

The results achieved with SmartPLS were analyzed in the framework of a research model to evaluate e-Banking, and with the premise of an approach focused on the client and not the company, and contrary to other works such as Bhattacherjee et al. (2018) who studied mandatory IT but believe that models such as TAM have limited applicability in compulsory environments.

The following are the findings for each of the hypotheses, based on the tables above:

For hypothesis 1 (H_1), the clients consider that the information they handle in e-Banking is secure and reliable, which supports the perception of its usefulness through the benefits obtained (useful data), the ease of procedures and time savings, and indirectly, as found by Zhou et al. (2021) with SEM analysis, in the loyalty of the users. At the same time, with these levels of confidence, H_2 is accepted by finding the software application to be flexible in its operation, easy to use, and the interactions are easy to understand, especially with the convenience of financial transactions (Jebarajakirthy & Shankar, 2021).

As for H_3, information quality in the form of being accurate, up-to-date, timely, relevant, and easy to understand allows clients to perform operations quickly with timely and useful information that

creates an environment of saving time and facilitating the process of financial services, and like Wang (2016), it has a greater impact on clients who make constant use of the tool. In H_4, information quality is the same way: an IT tool for the client to perceive how easy it is to operate e-Banking to generate flexibility among the various electronic services offered and time savings, and, as found by Villar and Khan (2021), that automation processes help to improve these activities.

For H_5, clients conceive that performing financial transactions quickly, with useful information, time savings, and facilitation in their procedures, encourages them to continue using e-Banking to keep track of their operations, interacting virtually with their bank so that they will continue with its constant use. This situation is similar to that studied by Anouze and Alamro (2019), who conducted their work with SPSS-AMOS, and George (2018), who analyzed TAM; nevertheless, for this correspondence, Muñoz-Leiva et al. (2017) did not find a strong relation, but rather a very weak one; it is necessary to determine the cultural influence of the country. Likewise, it is the lowest correspondence (this requires further study). The use is appreciated in H_6, which is reflected in the fact that the client considers the electronic banking application as easy to use, flexible, easy to navigate, and with clear and understandable interactions, similar to what was obtained by Mansou et al. (2016) in their factor analysis. Nevertheless, non-significant relations have been found by Ramos et al. (2007) and Boateng et al. (2016).

Continuing with the importance of usage, it is necessary to point out that this is the variable with the greatest explained variance concerning its dependent variables (satisfaction and loyalty), thus confirming its importance for information technologies and, on this occasion, for the harmonious development of e-Banking. H_7 is the most influential, with a path coefficient of .816 and an explained variance in satisfaction of .666, which coincides with the work of Goi and Ng (2011). In other words, the constant use of the application creates in the clients an awareness of emotional well-being that the banking service provides them by meeting their real needs, preferring it before going to a bank branch, and general satisfaction; a similar case occurs with loyalty (H_8), since the user, by making constant use of the facility, will use this technology repeatedly, so both (company/customer) benefit, an idea shared by Anderson and Srinivasan (2003).

Taking into account the above descriptions, some of the practical implications and recommendations to strengthen what was found in the analysis of the model and serve as strategies to follow stand out: ensure the integral quality of e-Banking, assuring reliability and privacy, add new mobile banking functions, carry out sensitivity campaigns, provide services with precision, minimize risks, provide high speed in the processes, establish a marketing plan (benefits, advantages through traditional media or current social networks), develop a user manual and above all, provide high security with fingerprint management, complex passwords, facial, voice, and eye recognition, and antivirus software.

Conclusions

The competitive environment continues to intensify, and organizations are constantly looking to stay ahead of the curve if they do not want to be absorbed or disappear from the business world. Today, the Internet is a window of opportunity, but at the same time it is a potential source of risk if the arguments that emanate from technology are considered. Cell phones have modified the traditional means of communication between the various economic actors, and e-Banking is part of the dynamic combination of financial services and the Internet. Therefore, this research aims to determine how trust and information quality impact the satisfaction and loyalty of clients with the use of e-Banking by cell phone in northeastern Mexico.

The importance that the clients ascribe to trust is indisputable since they require security and privacy in their electronic transactions. When they have it, it is reflected in the usefulness of the computer application, but more precisely in the ease of use with which they operate the technology that is a direct incentive to continue its use. Nonetheless, loyalty and satisfaction play an important role in e-Banking, which is mainly reflected in the trust and the information quality they handle, which is why banks must take full advantage and rethink their e-Banking business models, always thinking about the client's productivity and closely following the real needs of those who make use of this technology.

Likewise, it is important to point out that the information quality also plays an significant role in increasing the perceived usefulness of e-Banking and the positive repercussions it has on this significant administrative process for both the banking industry and its clients, which, in the end, form a virtuous win-win circle as a trend that has been followed for some time in the business world.

The most outstanding data are in the sense that satisfaction and loyalty are two important variables that should be considered in the practical implications and research work, and in the same way, banks should consider them in their business models and when undertaking technological developments for e-Banking. In other words, the final model evaluated presents a predictive trend that may be useful for future research work in combination with the Technology Acceptance Model. In addition, the potential results are important for electronic sales teams and marketers to focus on financially stable young people.

Limitations: The research is carried out in the Mexican state of Tamaulipas, so the results are not generalizable to the country and therefore require validation in other societies and cultures. Furthermore, the model evaluated does not originate in a simple and consolidated theory of e-Banking and TAM.

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