ELECTRONIC TECHNICAL ASSISTANCE SERVICES QUALITY: MEDIATION ROLE OF BRAND IMAGE AND SATISFACTION ON REPURCHASE INTENTION

Qualidade dos Serviços de Assistência Técnica Eletrônica: Papel da Mediação da Imagem da Marca e Satisfação na Intenção de Recompra

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ABSTRACT

Purpose – This study analyzed the relationship between the perceived quality of electronic equipment technical assistance services with the intention of repurchasing, with the serial mediation model of satisfaction and brand image.

Design/methodology/approach – A quantitative research of a described character was carried out and the survey method was adopted with technical assistance clients (n = 158). The conceptual model was evaluated using regression with bootstrapping. And, for the analysis of the mediation effects, with two mediating variables, an adaptation of the macro PROCESS (Hayes, 2017) was made for the software R. Therefore, four hypotheses were assessed by a cross-section research method using mediation analysis.

Findings – The results indicate that general customer satisfaction mediates the relationship between the quality of the service perceived and the intentions to repurchase. In this sense, it can be concluded that the relationships between the perceived quality in services and the intentions of repurchase only occur through mediation for satisfaction or through the hierarchical causal relationship between satisfaction and image. The empirical test of the proposed model through a serial mediation approach expands the possibilities on understanding consumer brand affiliation processes. Moreover, it highlights the importance of assistance service companies as brand partners.

Originality/value – The main contribution of this research is that satisfaction and brand image are positively associated with the intention to repurchase as reflections of the perceived quality by the technical assistance services of electronic products. Thus, the work shows that customers perceive the quality of the service, and this, in turn, provides positive consequences for both the service provider and the manufacturer (repurchase intentions) and for the customer (satisfaction).

Keywords: Perceived Quality of Services, Technical Assistance, Satisfaction, Brand image.

RESUMO

Objetivo – Este estudo analisou a relação entre a qualidade percebida dos serviços de assistência técnica de equipamentos eletrônicos com à intenção de recompra, com o modelo de mediação serial da satisfação e da imagem da marca.

Desenho / metodologia / abordagem – Foi realizada uma pesquisa quantitativa de caráter descrito e adotado o método survey com clientes de assistência técnica (n = 158). O modelo conceitual foi avaliado por meio de regressão com bootstrapping. E, para a análise dos efeitos de mediação, com duas variáveis mediadoras, foi feita uma adaptação do macro PROCESS (Hayes, 2017) para o software R. Portanto, quatro hipóteses foram avaliadas por um método de pesquisa cross-section usando análise de mediação.

Resultados – Os resultados indicam que a satisfação geral do cliente medeia a relação entre a qualidade do serviço percebida e as intenções de recompra. Nesse sentido, pode-se concluir que as relações entre a qualidade percebida nos serviços e as intenções de recompra só ocorrem por meio da mediação pela satisfação ou pela relação causal hierárquica entre satisfação e imagem. O teste empírico do modelo proposto por meio de uma abordagem de mediação serial amplia as possibilidades de compreensão dos processos de afiliação de marca do consumidor. Além disso, destaca a importância das empresas de serviços de assistência como parceiras da marca.

Originalidade/valor – A principal contribuição desta pesquisa é que a satisfação e a imagem da marca estão positivamente associadas à intenção de recompra como reflexos da qualidade percebida pelos serviços de assistência técnica de produtos eletrônicos. Assim, o trabalho mostra que os clientes percebem a qualidade do serviço, e isso, por sua vez, traz consequências positivas tanto para o prestador do serviço quanto para o fabricante (intenção de recompra) e para o cliente (satisfação).

Palavras-chave: Qualidade Percebida de Serviços, Assistência Técnica, Satisfação, Imagem de Marca.

1 INTRODUCTION

The service sector is becoming increasingly relevant to the world economy (Wang & Teo, 2020). It can also be said that, over the years, this sector has always played an important role for the Brazilian economy and, currently, moves a substantial portion of the national market. According to the Brazilian Institute of Geography and Statistics (IBGE, 2016) from 2003 to 2016, the representativeness of the tertiary sector went from 65.8% to 73.3% of the value added to the Gross Domestic Product. According to the Annual Survey of Services (IBGE, 2016), the sector employed 12.3 million formal workers, the total paid in salaries and withdrawals totaled R$ 327.6 billion and with a net operating revenue in the order of R$ 1.5 trillion.

Services are products that differ from tangible goods (Li & Shang, 2020). These differences can be seen in the concept of service, in the form of production, as well as in the way they are consumed and evaluated (Mangini et al., 2017). Among the critical aspects associated with the provision of services, due to its intrinsic characteristics, quality becomes a fundamental criterion for the success of companies operating in this sector. Mangini et al. (2017) show that the consumer seeks a way of evaluating the quality of the service even before its provision.

It is understood that satisfaction and repurchase intention correspond to results determined by the quality of services (e.g., Ariffin et al., 2016; Kitapci et al., 2014; Wu & Chen, 2014; Choi & Kim, 2013). In this way, quality affects perceptions of value, brand image, and also directly influences behavioral intentions (Lien et al., 2015). It is argued that brand value from the consumer's perspective is a multidimensional construct, consisting of four dimensions: brand awareness, brand image, loyalty and perceived quality (Costa & Almeida, 2012). In the Brazilian context, a study found empirically that the value of the brand from the consumer's perspective is formed by three dimensions: perceived quality, loyalty and memories / associations to the brand (Vargas Neto &

Luce, 2012). From the perspective of service customers, some studies have verified the influence that perceived quality has on the brand image (e.g., Yang et al., 2017; Wu et al., 2011). Konuk (2019) found that services can actually improve the customer's satisfaction, in addition to generating a preference and positive attitude towards the brand, influencing the frequency of purchase and re-purchase intention.

In this same sense, the quality of service directly influences the perception of the brand. Thus, the positive image of the store will be formed as customers are satisfied with the quality, while the service is in process. Purchase intent and behavior will also be influenced by the quality of service (Yang et al., 2017). Although, in recent years, research aimed at understanding the implications about the perception of quality in services has been developed (e.g.: Li & Shang, 2020; Zhou et al., 2018; Liu et al., 2017; Ismail et al., 2017), in relation to companies that offer some type of service such as repair or maintenance (e.g., Bagherzadeh et al., 2020; Cho et al., 2016; Scott & Weaver, 2014) the literature is still scarce.

The main relevance of this study is to investigate the serial mediation model of satisfaction and brand image in the relationship of perceived quality with the repurchase intention, which is an analysis not yet explored in the literature on quality services. With regard to the maintenance and repair segment of electronic products, it is argued that the customer's intention to buy back is influenced by factors such as perceived quality, satisfaction and brand image (Hellier et al., 2003). According to Izogo and Ogba (2015), focusing on the antecedents of quality of service helps the repair and maintenance services of suppliers to improve their performance and, consequently, improve customer satisfaction. Given the above, this study will address how the proposed serial mediation model behaves in the analysis of maintenance and repair services of electronic products. Thus, it will contribute to the understanding of this segment and will analyze the effectiveness of this model in the study of repurchase behavior.

Based on this, the present study aims to analyze the relationship between the perceived quality of electronic equipment technical assistance services with the repurchase intention, with the serial mediation model of satisfaction and brand image. The article is structured with this introduction, followed by the theoretical framework, in which are presented the four research hypotheses that guided this study and could understand how brand satisfaction and image simultaneously play a mediating role in the relationship between quality and repurchase intention. In sequence, it presents the research method, the results and, finally, the conclusion of the study.

2 THEORETICAL FRAMEWORK

In this section, topics related to the theoretical foundation will be presented: perceived quality of services; repurchase intentions; satisfaction; and brand image, as well as the conceptual model and research hypotheses. This section builds a theoretical framework based on the arguments of the authors in the research area, so that it can support the analyzes and methodological procedures performed.

2.1 Perceived Quality of Services

The first studies on service quality defined quality as the extent to which a service meets customer needs, and implies a comparison of consumers' expectations and perceptions (e.g., Grönroos, 1984, 1982; Parasuraman, Zeithaml & Berry, 1988, 1985). For Li and Shang (2020), the perceived quality is associated with the client's general assessment of the service delivery process.

For Grönroos (1995), the perceived quality is obtained when the quality experienced meets the customer's expectations, that is, the expected quality. Therefore, the process of evaluating the quality of service that the customer does is based on their expectations (expected quality) and their perceptions of the service (quality experienced). Based on this definition, there are two basic ways to define quality: one from the service provider's point of view and the other from the customer's perspective. Quality from the customer's point of view is the central objective of this study because it reorients the managers of companies providing services to the satisfaction of their customers.

Dabholkar et al. (1996) understood that there was not yet a scale to measure the perceived quality in services with the necessary amplitude to be applied in any business segment. They realized that the competitive environment in retail was changing rapidly and noticed the low adherence of the Servqual scale (Parasuraman et al., 1988, 1985), so they believed that in this environment it was necessary to measure other dimensions besides those pointed out in Servqual. The scale proposed by Parasuraman et al. (1988) analyzes the perceived quality of service through the minimum acceptable quality, the ideal quality and the quality experienced in the service being analyzed, while the scale proposed by Dabholkar et al. (1996) uses only the quality experienced by the user.

Combining the findings made with the literature on the assumptions of the Servqual scale, Dabholkar et al. (1996) conceived a hierarchical structure of the factors that determine the quality of service for the retail environment. In the same way as Parasuraman et al. (1988, 1985), Dabholkar et al. (1996) also suggest that the perceived quality of services is determined by five distinct dimensions. However, the dimensions recommended in that study were: physical aspects, reliability, personal interactions, problem solving and internal policies of the retailer (Wang & Teo, 2020).

From the point of view of maintenance and repair services, recent studies analyzed quality from the consumer's perspective, Izogo and Ogba (2015) studied the perception of service quality in the auto repair services sector, while Cho et al. (2016) studied the effect of service quality and customer satisfaction in service centers of companies that manufacture consumer electronics. These studies showed that the perception of service quality is associated with customer satisfaction.

2.2 Repurchase Intention

The concept of intention to repurchase is described as the intention to revisit and associate positive links with quality and service satisfaction (Kitapci et al., 2014; Javed & Wu, 2020). In this sense, perceptions of service quality are precursors to word-of-mouth recommendations and repurchase intentions. Ariffin et al. (2016), Wu and Chen (2014) and Choi and Kim (2013) confirm that the quality perceived by the customer positively impacts repurchase intentions, through satisfaction. In general, higher perceived quality leads to stronger repurchase intentions (Ariffin et al., 2016).

Previous studies have provided empirical support for satisfaction as a predictor of a positive and direct effect on channeling repurchase intentions (e.g., Mensah & Dei Mensah, 2018; Izogo & Ogba, 2015). When the right services are provided immediately as needed or expected, customers not only experience pleasure, but also pass on their opinion to others in a positive way (Kitapci *et al.*, 2014).

Satisfied customers are more likely to return to repurchase services (Hellier et al., 2003). Therefore, this variable has become important for service companies to create repeated purchases and achieve a sustainable competitive advantage (Izogo & Ogba, 2015). In the context of the service sector, this construct has been extensively investigated as a predictor of consumer post-purchase behavior (e.g., Yang et al., 2017; Liu et al., 2017).

Studies suggest that satisfaction is essential to retain customers in the service sector. Dabholkar, Shepherd, and Thorpe (2000) observed that satisfaction acts as a mediator between perceived quality and behavioral intentions. Cronin and Taylor (1992), on the other hand, demonstrated

that the perceived quality of the service led to satisfaction, and that satisfaction, in turn, had a significant positive effect on repurchase intentions. Wu et al., (2011) not only observed the direct effect of service quality on the intention to repurchase, but also the indirect effects through the interference of the brand image.

In this sense, this construct plays a key role in helping customers decide whether or not they want to buy the brand and, thus, influence their buyback behavior. Research shows that the brand image plays an important role in explaining the effect of purchase intentions, particularly in service companies (Wang & Yang, 2010). Veloutsou (2015) emphasizes that the relationship that consumers are willing to develop with a certain brand is clearly a result of the satisfaction derived from their experiences with the brand and the degree of trust established.

H1: The perceived quality of services (PQS) is positively related to the intention to repurchase.

2.3 Satisfaction and Brand Image

Traditionally, customer satisfaction is conceptualized as the post-consumer evaluation of the company or brand and / or its offers, depending on the perceived value, quality and expectations (Oliver, 1981; Sedunov, 2020). In this sense, Thyroff and Kilbourne (2018) define satisfaction as a customer's judgment that a product or service provides a pleasant level of fulfillment related to consumption. Satisfaction is generally seen as a broader concept than service quality (Zeithaml et al., 2003). In this sense, it can be understood that service quality is a subset of satisfaction.

Satisfaction comprises both cognitive and affective assessments, while service quality is essentially a cognitive assessment (Meesala & Paul, 2018). In addition, the perceived quality of the service is an overall long-term assessment of a product or service, while satisfaction is a transaction-specific assessment (Cronin & Taylor, 1992; Ahrholdt et al. 2019). Flavián et al. (2019) point to an emerging consensus that satisfaction is the result of individual service transactions and global service, while service quality is the client's general impression of the relative inferiority or superiority of the organization and its services.

There is sufficient evidence that service quality is an antecedent of customer satisfaction (Meesala & Paul, 2018; Lee et al., 2000; Cronin & Taylor, 1992). Croin and Taylor (1992) found that service quality was an antecedent of customer satisfaction, while customer satisfaction was not a significant determinant of service quality. Lee et al. (2000) examined the direction of causality between service quality and satisfaction, and the results showed that perceived service quality was an antecedent of satisfaction, and not the other way around. Some studies have also verified the association that perceived quality and satisfaction, from the perspective of service customers, have on the brand image (eg Yang et al., 2017; Wu et al., 2011). In view of the above, the following hypothesis of the mediating role of consumer satisfaction in relation to the quality of service with the intention of repurchase was proposed:

H2: Consumer satisfaction with the service mediates the direct relationship between PQS and the intention to repurchase.

Regarding the brand image, it appears that this is considered a significant aspect of a company's competence to maintain market position and participation. It is understood as a variable that reflects ideas, the sum of beliefs and impressions that a person has of an organization (Lopez et al., 2011). In this sense, Aaker (1992) states that the brand image must be supported by a good quality product or service.

As the brand image is a customer-based concept, it helps to understand the attributes, functional consequences and personal experiences that customers associate with a particular product or service (Chen et al., 2019). In this sense, a good brand is an important relational tool for any company, since the brand credibility affects the customer's behavior. For some brands, consumers develop cognitive and affective responses, which leads to repeated purchases (e.g., Wu et al., 2011; Lien et al., 2015).

It is believed that the process of assessing the perceived quality of a service helps to build a positive brand image. Thus, supposedly, the favorable image of a brand can contribute to the perception of good service, resulting in an individual's predisposition to make a new purchase in the future. Based on this reasoning logic, the following hypothesis was proposed:

H3: The brand image mediates the direct relationship between PQS and the intention to repurchase.

Additionally, it is believed that the satisfaction and the evaluation of the brand image, together, can contribute positively in increasing the intention to repurchase, based on the perception of the quality of services. Thus, based on this understanding, the following series mediation hypothesis was proposed:

H4: Satisfaction and brand image simultaneously assume a mediating role in the relationship between PQS and the intention to repurchase.

2.4 Conceptual Model and Research Hypotheses

Several studies have identified attributes to measure service quality, tending to directly link the dimensions of service quality to other constructs, or to combine the dimensions of service quality into an aggregate variable before linking it to other constructs (Grönroos, 1984; Parasuraman et al., 1988). Therefore, this study theorizes that the perceptions of service quality are related to the intentions of repurchase, first through satisfaction and then through the brand image. Integrating the two models with mediation through these constructs produces a three-way mediation model, as shown in Figure 1.

Figure 1 – Serial Multiple Mediator Model
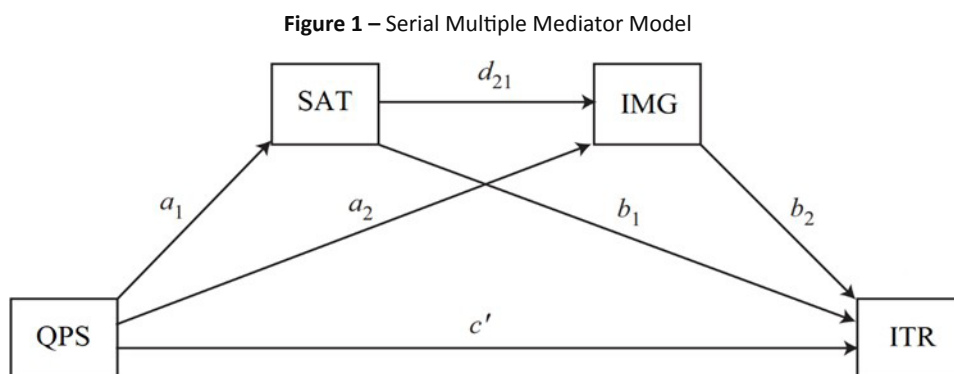
Source: Adaptation of the model proposed by Hayes (2018, p. 169).

In this sense, a model of two mediators (Hayes, 2017, p. 169) was used, in series, in which the perceived quality of services is modeled as affecting the intention to repurchase through three ways. One is indirect and goes from perceived quality of services to the intention of repurchasing

only through customer satisfaction. A second indirect path passes only through the brand image. And a third indirect influence goes through both, in series, satisfaction and brand image, with customer satisfaction affecting the brand image. The remaining effect of the perceived quality of services is direct, that is, without mediation.

3 RESEARCH METHODS

This section presents the methodological procedures that permitted the realization of this investigation. Alongside clarifying the nature of the work, here there is the specification of each stage in the process of collecting and analyzing the data.

3.1 Nature of the Research

The present study assumes a quantitative descriptive approach. Concerning the method used, one opted for the survey, based on the use of structured questionnaires delivered to a sample of a determined target population. This method has a variety of advantages – for example, the ease of administrating data consistency, since the answers are linked to a range of alternatives (Rice et al., 2017; Costa et al. 2018).

3.2 Procedure for data collection

The instrument used for collecting data to test the proposed research model was structured with three questions of the socio-demographic kind to characterize the sample universe, and then twenty-nine affirmations constructed on the following: Perceived Quality of Services, Consumer Satisfaction, Brand Image and Intention to Repurchase. All of the measurements used in this research were adopted and modified from existing scales, as exposed in Table 1. The text for all scales was adapted to suit the chosen service and cultural questions linked to the context of the study.

Table 1 – Statement of the Constructs of the Study and its Indicators

Constructs	Indicators
Perceived Quality of Services (PQS): Measures the perception of service quality. Dabholkar *et al* (1996)	*Physical Aspects (PA)* PA1: The ambiences and facade of the technical assistance service have visual appeal. PA2: The cleanliness of the space for technical assistance, including the front reception, is suitable for visitation. PA3: The layout of the technical assistance facilitates the movements of the client. *Confidence (CON)* CON1: When technical assistance promises something, it meets its promise in due time. CON2: Technical assistance performs services correctly the first time round. CON3: Technical assistance maintains the availability of the components for the client. *Interpersonal Relationships (IR)* IR1: The employees are always available to attend clients. IR2: The behavior of the employees inspires confidence in the clients. IR3: The staff at technical assistance are always courteous. *Problem Solving (PS)* PS1: When the client has a problem, the business shows interest in resolving it. PS2: The business is predisposed towards resolving a problem as soon as it comes to its attention. PS3: The staff maintains contact with the consumer about the status of improvements. *Internal Policy (IP)* IP1: The technical assistance offers original quality items. IP2: Opening hours are convenient for clients. IP3: Clients have access to parking.
Consumer Satisfaction (SAT): To measure the domain of satisfaction in the client and not the characteristics of the product (Oliver, 1981)	SAT1: I am satisfied with the decision I have made to use the services of this business. SAT2: I have liked the service of this business. SAT3: Using the service of this business has been a good experience.
Brand Image (IMG): Measures the degree to which a person believes that a brand will continue to deliver its promises (Erdem & Swait, 1998)	IMG1: The brand meets its promises. IMG2: The brand possesses a name that you can trust. IMG3: Based on my experience with the brand, I know that the brand gives importance to its clients.
Intention to Repurchase (RI): Measures the probability of a person rebuying a specific product (Heitmann, Lehmann, & Herrmann, 2007)	RI1: I would consider buying the products of this brand again. RI2: I do not intend to change brands. RI3: Comparing the other brands, I still prefer this brand.

It was a matter of putting the scales of measurement into place, under the direction of the literature, abiding by the *Likert* format with five possible scores, with totally disagree (1) and totally agree (5) as the "extreme points" of opinion. The *Likert* Scale of evaluation was used because it is the most adequate for research projects that employ *surveys* (Hair, 2017). The non-probability sampling technique was convenient since, as highlighted by Hair (2017), it has the capacity of reaching a large number of interviewees in a relatively short amount of time.

Because of the ease with which the samples generate data, they may tend to veer away from being representative, making it difficult to generalize the results (Hair, 2017). The intentional component incorporated in the sampling approach anticipated the threats inherent in these lapses. Efforts were made to guarantee that the selected participants would be those capable of responding to the questionnaire's items. Even though the interviewees were easily reachable, not all of the interviewees completed the interview.

The means of contact was simply cold calling for giving access to consumers after working hours, and for this type of contact enabling a restricted amount of time for applying the questionnaire. According to Farooq and Villiers (2017), these moments for questioning tend to have a short duration besides permitting that from a single centralized point, one is able to cover a wide geographical area.

In total, 158 clients answered questionnaires within the one-year period of the legal and contractual terms of their respective guarantees. These are customers of an authorized technical assistance on televisions located in a city in Brazil. The services of this authorized are intended only for a single manufacturer.

Regarding the sample, it was of the non-probabilistic and accessibility type. It counted on the availability and interest of customers to participate in the survey. In terms of sample size, as these were real customers who took their television sets for technical assistance and after the service was provided, they were invited to participate in the survey. According to the practical norms of Hair et al (2009), it is understood that the size proved to be adequate for conducting the analyses.

3.4 Procedure in the analysis of data

At the initial stage, one performed an inspection of the data collected with the intention of identifying missing data and outliers. Afterwards, the procedure was to verify the validity and reliability of the scales used in the study to measure the constructs involved. Therefore, the results underwent the following tests: Exploratory Factor Analysis (EFA) and Cronbach's *Alpha*. For data analysis and verification of research hypotheses, there were the following tests for statistical inference: testing of hypotheses, variance analysis, correlation analysis and regression analysis. The software *R Project for Statistical Computing* (R-3.6.0) analyzed the statistical dimension of the data. The conceptual model was evaluated through a cross-sectional survey and analysis of regression using *bootstrapping*. One relied on the utilization of the PROCESS macro for *R software* (Hayes, 2017) to evaluate the effects of the intervention. The following section presents and discusses the results, starting out from theoretical bases.

4 Analysis and discussion of results

In this section are presented the analysis of results and statistical processes performed from the data obtained. Initially, the sample is characterized, then considerations are made regarding the inspection of the data base, which corresponds to the exploratory analysis and measurement of the constructs. Finally, the empirical findings, which contributed to the achievement of the objective, are presented and discussed from the theoretical review.

4.1 Sample characterization

Altogether, data were collected from 158 customers of a maintenance and repair company for electronic products, 64.56% of whom were male and 35.44% were female. Regarding the age group of the respondents, 41.14% were up to 30 years old, 38.61% were between 31 and 46 years old and 20.25% were over 46 years old.

In terms of income, we found that the sample included 93.04% with income of up to four minimum wages (R$ 4,180.00) and 6.96% with income above four minimum wages. With regard to the subjects' level of education, data showed that most respondents had completed high school (62.65%), 36.08% had a higher education (complete or incomplete) and only 1.27% had a graduate degree (complete or incomplete).

4.2 Reliability and validity of scales

After characterizing the sample, the next step was to verify the dimensionality and reliability of the measurement scales of the constructs involved in the research such as perceived quality in services (PQS), brand image (IMG), satisfaction (SAT) and repurchase intention (RI). Therefore, initially an exploratory factor analysis (EFA) was carried out as, according to Watkins (2018), it corresponds to a multivariate statistical technique that consists mainly of reducing and summarizing data and is fundamentally based on verifying the relationship among sets of many interrelated variables being examined and represented in terms of some underlying factors.

The variable rotation orthogonal method (VARIMAX) allowed the identification of factors (scale structure). This method minimizes the number of variables with high loads in a factor, thus increasing the interpretability of the factors. The Kaiser-Meyer-Olkin (KMO) sampling adequacy measure that compares the magnitudes of the observed correlation coefficients with the magnitudes of the partial correlation coefficients was 0.900 and the Bartlett sphericity test used to examine the hypothesis that the variables are not correlated in the population was 2835.56, with 276 degrees of freedom based on a statistical significance of $p<0.001$, confirming the structure of the factors.

Later, to access the internal consistency of indicators that reflect each construct the *Alpha* of *Cronbach* was analyzed. According to Hair (2017, p. 187), *Cronbach's Alpha* can vary from 0 to 1 and, in most cases, a value below 0.700 would normally indicate marginal to low (unsatisfactory) internal consistency. As can be seen in Table 2, the tests showed coefficients above 0.700 for all constructs, confirming the internal validity of the scale used.

Table 2 – Alpha coefficients and descriptive analysis of the constructs

Cod.	Constructs	Cronbach's α	Average	Median	Standard deviation
PA	Physical Aspects (QPS)	0.940	2.45	2.00	1.07
CON	Confidence (QPS)	0.900	3.55	4.00	1.03
IR	Interpersonal Relationships (QPS)	0.790	4.05	4.17	0.82
PS	Problem Solving (QPS)	0.830	2.95	3.00	0.65
IP	Internal Policies (QPS)	0.710	3.71	3.67	0.62
RI	Repurchase intention	0.820	4.07	4.33	0.82
IMG	Brand Image	0.850	4.18	4.00	0.58
SAT	Satisfaction	0.780	4.18	4.33	0.61

According to the data in table 2, it appears that the IR dimension has the highest average

(4.05) among the other dimensions of the PQS, being accompanied by the averages of the three constructs, RI (4.07), IMG (4.18) and SAT (4.18). These results corroborate the findings of Johnson and Russell (2015), which demonstrate a positive relationship between personal factors and the perception of the quality of the service as an antecedent of satisfaction. In this same context, many studies have suggested that the effect of interpersonal quality on satisfaction is substantial (Wu et al., 2015). The PA and PS dimensions had the lowest averages, being 2.45 and 2.95, respectively, which may indicate possible negative aspects associated with these two dimensions.

4.3 Construct Analysis

In this section, the results of the inferential tests performed are presented in order to achieve the purpose of the research. Initially, a correlation analysis was made to analyze the relationship between the investigated constructs. According to Gogtay and Thatte (2017), the correlation analysis consists of a statistical tool that aims to investigate the strength of the association between two variables, is an index used to determine if there is a linear relationship and indicates the degree to which the change in a variable is related to the change in another variable.

In this sense, there was a relationship between the constructs involved in the study, namely: RI, IMG, SAT and PQS. Table 3 shows the correlation coefficients and indicatives of statistical significance between the variables, in which the asterisks indicate p-value ≤ 0.05.

Table 3 - Variable correlation coefficients *(Pearson's coefficient)*

Variables	ITR	IMG	SAT	QPS
RI	1,000	0.796 ***	0.752 ***	0.466 ***
IMG		1,000	0.826 ***	0.464 ***
SAT			1,000	0.520 ***
QPS				1,000

In Table 3, it can be seen that all variables involved in the study showed positive associations. In addition, the correlations proved to be statistically significant. Analyzing the coefficients of the relationship between customer SAT and IMG, it was found that the coefficient of correlation between the constructs (0.826), resulting in a positive and significant correlation. According to Hayes (2017), correlation and forecasting are closely connected concepts. If two variables are correlated with each other, information about values in a variable can be used to estimate with at least some degree of precision the values of the other variable.

In this way, we can see in the context of the study that when consumers feel satisfied with the service offered they can assign a higher value in terms of the perception of the IMG. This relationship, in turn, can impact the consumer's RI (0.796). This result corroborates the results of Nyadzayo and Khajehzadeh (2016) who found that customer satisfaction is related to the perception of IMG, through a relationship of dependence. Thus, it is understood that SAT can contribute to a greater perception of the IMG, during the service experience. Hence, it is also clear that the PQS associated with SAT (0.520) has the highest correlation coefficient in relation to the other constructs associated with this same variable, which implies that the perception of service quality is associated with customer satisfaction.

4.4 Checking the hypotheses

After analyzing the constructs we used mediation analysis, which, according to Hayes (2018), consists of a technique to analyze how an independent variable influences a dependent variable through one or more mediating variables.

Table 4 – Coefficients of regression and standard errors of multiple mediation in series.

Dependent Variables											
		SAT				IMG				RI	
Independ.		ß	SE	P		ß	SE	P		ß	SE	P
QPS	a1	0.796	0.099	<0.001	a2	0.035	0.074	0.635	ç'	0.131	0.109	0.230
SAT					d_{21}	0.757	0.050	<0.001	b_1	0.410	0.117	<0.001
IMG									b_2	0.684	0.119	<0.001
		R^2 = 0.298				R^2 = 0.681				R^2 = 0.647		
		$F(1, 153) = 63.69$ p <0.001				$F(2, 152) = 165.7$ p <0.001				$F(3, 151) = 95.24$ p <0.001		

As seen in Table 4, only the relationships between PQS an IMG (a2) and PQS and RI (c') were not statistically significant. We can see that approximately 30% (R^2 = 0.298) of SAT can be explained by the PQS, with a ratio (a1) of 0.796 (p<0.001). Approximately 68% (R^2 = 0.681) of the IMG can be explained by PQS (partial and not statistically significant) and SAT (0.757, p<0.001), (a2, d21). It was also possible to verify that 65% (R^2 = 0.647) in the variation of the RI can be explained by the constructs PQS (0.131, p = 0.230), SAT (0.410, p<0.001) and IMG (0 684, p<0.001).

Table 5 - Total, direct and indirect effects from the research hypotheses

Research hypothesis	Description	Relationship	ß	Hypothesis Verification
-	Total Effect	Ç	0.894	-
H_1	Direct Effect	ç'	0.131	Not supported
H_2	Indirect Effect 1	$a_1 \rightarrow b_1$	0.327	Supported
H_3	Indirect Effect 2	$a_2 \rightarrow b_2$	0.024	Not supported
H_4	Indirect Effect 3	$a_1 \rightarrow d_{21} \rightarrow b2$	0.412	Supported

As described in Table 5, the analysis of H1 verified the direct association of PQS in relation to RI (c '), where c = c' + a1b1 + a2b2 + a1d21b2. The result of the regression analysis shows that the hypothetical relationship is positive, although it is not significant (*ß* = 0.131, *p* = 0.230), occurring a partial association of PQS in relation to the RI. Zeithaml et al. (2003) and Meesala and Paul (2018) state that the SAT is generally seen as a concept wider than the PQS. In this same sense, the relationship between the two constructs showed that the PQS, analyzed individually, does not have a significant association with RI, for this reason H1 was not supported.

The H2 says that the satisfaction measures the path between the PQS and the RI. The significance test required the prediction of an indirect PQS association, strengthening satisfaction. According to the results, the effect is significant and positive (*ß* = 0.327, *p*<0.001) supporting H2. The results corroborate with the findings of Dabholkar et al. (2000) who observed that satisfaction acts as a mediator between the perceived quality and the behavioral intentions. In this same sense, Kitapci et al. (2014) and Ahrholdt et al. (2019) showed that when adequate services are provided immediately as needed or expected, customers are not only satisfied, but are also more likely to return to repurchase services.

For H3, the IMG measured the relationship between PQS and RI, and the significance test implied the estimation of an indirect association of PQS, strengthening the IMG. The test revealed that PQS, by itself, is not associated with the IMG ($ß = 0.035$, $p = 0.635$) and that the IMG, in turn, was associated with the RI ($ß = 0.684$, $p <0.001$). Therefore, the IMG is associated with the RI due to its association with SAT. In this sense, it was possible to verify that PQS partially affected the RI through mediation by IMG ($ß= 0.035 \times 0.684 = 0.024$). However, this relationship was not significant, therefore, H3 was not supported.

The results corroborate the findings of Veloutsou (2015) who emphasizes that the relationship that consumers are willing to develop with a certain brand is clearly a result of the satisfaction derived from their experiences with the brand and the degree of trust established. Yang et al. (2017) found that services can actually improve customer's satisfaction in addition to generating a preference and positive attitude towards the brand, influencing the frequency of purchase and repurchase intention. In this sense, we can see the importance of the association of satisfaction of the consumer as mediator of this relationship.

The H4 states that SAT and IMG measure the relationship between PQS and the RI. The indirect effect of PQS on the RI through mediation by SAT and IMG was significant ($ß = 0.412$, $p<0.001$). Therefore, in line with the findings of Konuk (2019), the results of the analysis showed that PQS is strongly associated with SAT which in turn is associated with the IMG and that they are related to RI. Thus, H4 is also supported. The results corroborate the findings of Cho et al. (2016) who also studied the effect of service quality and customer satisfaction in service centers of companies that manufacture electronics. As a result, the study supports only H2 and H4.

5 CONCLUSION

This research seeks to analyze customer evaluation regarding the perceived quality of technical assistance services for electronic equipment, as well as their relationship with satisfaction, brand image, and repurchase intention. From the collection and analysis of data from customers of a technical assistance services company, it was found that both satisfaction and brand image are positively associated with the repurchase intention, through perceived quality of services.

The effect of the interaction between quality of service and customer satisfaction in the repurchase intention had a significant relationship. Thus, the managers of maintenance services and electronic product repair establishments must pay attention to the quality of their services in order to remain competitive in the technical assistance market. This is because the study reveals that the quality of service as perceived by customers is significantly associated with customer satisfaction, which in turn has a strong association with the brand image of the product.

In this sense, it can be concluded that the relationship between the perceived quality in services and repurchase intentions only occurs through the mediation of satisfaction or through the hierarchical causal relationship between satisfaction and image. The study highlights the importance of perceptions of quality in services, satisfaction and brand image in the repurchase intentions. The findings suggest that personal relationships have proved to be an important dimension of quality of service, since customers want to make secure purchases and to be sure that employees have the ability to offer quality service.

This research will help managers and academics understand the perceived quality of services and their relationship with satisfaction, brand image and repurchase intentions, in the context of technical assistance services. It was found that technical assistance is a determining factor in customers' perceptions of quality, brand image of products and repurchase intentions. In this sense, as they are maintenance and repair services for electronic products, with legal and contractual war-

ranties of one year in the period of the context of this study, it is important that these companies are committed to the quality of the service offered, since they are extensions of the manufacturer.

It is important to mention that the study has some limitations. The main limitation is related to the sample selection. The survey data was collected from a single company by a non-probabilistic sample. For this reason, it is emphasized that the data cannot be generalized. Difficulties encountered with the accessibility and predisposition of consumers to collaborate with the research limited the sample size.

It is recommended that future studies take samples from other technical assistance companies and in different locations so that they can reflect the market for maintenance and repair services. In addition, future studies should examine factors other than those listed, such as the relationship between brands of electronic products and consumer perceptions of the quality of service provided by companies in the authorized network. The research model proposed in other companies in other segments of technical assistance can be applied, such as white goods, for example. The comparison between the direct and indirect effects of PQS (Perceived Quality of Services), can provide a greater understanding of the factors that are associated with this variable. Relating the costs of maintaining and repairing products with the variables contemplated in this study can provide an understanding of the need to maintain authorized technical assistance at the expense of repair centers or replacement of the product by the manufacturer itself.

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1. Definition of research problem	√	√		
2. Development of hypotheses or research questions (empirical studies)	√	√	√	
3. Development of theoretical propositions (theoretical work)	√	√	√	
4. Theoretical foundation / Literature review	√		√	√
5. Definition of methodological procedures		√	√	√
6. Data collection	√	√		√
7. Statistical analysis		√	√	√
8. Analysis and interpretation of data	√	√	√	√
9. Critical revision of the manuscript		√	√	√
10. Manuscript writing	√	√	√	
11. Other (please specify)				

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