

THE IMPACT OF GLOBAL PERCEIVED QUALITY ON THE BEHAVIOUR OF AUTOMOBILE'S CONSUMERS

Purpose of the study: The objective of this work was to identify the perceived quality attributes of car owners and how these attributes affect satisfaction, regret, trust, pride and, word of mouth communication.

Methodology / approach: There were two phases (qualitative and quantitative) in this study. In the qualitative phase, we conducted 20 in-depth interviews with car owners, with the purpose of identifying the perceived quality attributes by them. In the quantitative phase, we surveyed 311 owners of automobiles of different brands. For the statistical analysis, we opted to test the hypothetical model through Structural Equations Modeling (SEM).

Main results: Results show that perceived quality among automobile consumers is a multidimensional construct (status and power, handling dynamics, corporate responsibility, brand heritage, resale value, durability, internal space, and trunk capacity) and impacts on satisfaction, regret, word of mouth communication, trust, and pride.

Theoretical / methodological contributions: This research measures the perception of quality of automobiles in post-purchase situations, exploring not only attributes in service quality but also the product itself while exploring other dimensions from the quality-perception construct. Furthermore, it studied how the perception of quality affects behavioral dimensions beyond the satisfaction construct: regret, reliability, pride, and word-of-mouth communication.

Relevance / originality: This work considered both physical attributes (e.g., internal space and trunk capacity) and, intangibles (e.g., Power and Status, Brand and company's tradition) perceived by car owners. Moreover, to investigate the perception of quality in service and product at the same time is not common in consumer behavior literature.

Keywords: Perceived Quality. Automotive Industry. Structural Equation Modelling; Service Quality. Consumer Behaviour.

IMPACTOS DA QUALIDADE PERCEBIDA GLOBAL NO COMPORTAMENTO DOS CONSUMIDORES DE AUTOMÓVEIS

Objetivo do estudo: Identificar os atributos de qualidade percebidos dos proprietários de carros e como esses atributos afetam a satisfação, o arrependimento, a confiança, o orgulho e a comunicação boca a boca.

Metodologia / abordagem: Esta pesquisa foi desenvolvida em duas fases (qualitativa e quantitativa). Na fase qualitativa, foram realizadas 20 entrevistas em profundidade com os proprietários dos carros, com o objetivo de identificar os atributos de qualidade percebidos por eles. Na fase quantitativa, foi realizado um survey com 311 proprietários de automóveis de marcas diferentes. Para a análise estatística optou-se por testar o modelo hipotético por meio da Modelagem de Equações Estruturais (MEE).

Principais resultados: A qualidade percebida pelos proprietários de automóveis é um construto multidimensional (status e poder, dirigibilidade, responsabilidade corporativa, marca e tradição da montadora, valor de revenda e manutenção, durabilidade, espaço interno e capacidade do porta malas) que apresenta impactos sobre satisfação, arrependimento, comunicação boca a boca, confiança e orgulho.

Contribuições teórico-metodológicas: Esta pesquisa mede a percepção da qualidade dos automóveis em situações pós-compra, explorando não apenas atributos em qualidade de serviço, mas também o produto em si. Além disso, verificou-se que a percepção de qualidade afeta as dimensões comportamentais além da satisfação, como arrependimento, confiança, orgulho e comunicação boca-a-boca.

Relevância / originalidade: Este trabalho considerou tanto atributos tangíveis (por exemplo, espaço interno e capacidade do tronco) quanto intangíveis (por exemplo, poder e status, marca e tradição da empresa) percebidos pelos proprietários de automóveis. Além disso, investigar a percepção de qualidade no serviço e no produto ao mesmo tempo não é comum na literatura de comportamento do consumidor.

Palavras-chave: Qualidade Percebida. Indústria Automobilística. Modelagem de Equações Estruturais. Qualidade de serviço. Comportamento do Consumidor.

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1 INTRODUCTION

Automobiles are not just about transportation anymore. They are valued for convenience, safety, transmit glamour, social status, and represent consumer self-image (Jamal & Al-Marri, 2007). The buyer chooses to buy it based on his or her personality and personal preferences. There are utilitarian benefits (e.g., mechanical performance) and hedonic perceptions involved that forms the perception of quality. Therefore, consumers purchase cars based on perceptions of quality. Perceived quality is a central element in business strategy (Golder, Mitra, & Moorman, 2012), as quality refers to measured and verified superiority in any predetermined ideal pattern (Zeithaml, 1988).

The traditional understanding of quality perception in an automotive context is related to service quality. Many researchers have been exploring the topic in several countries (Balla, Ibrahim, & Ali 2015; Choi, Han, & Choi, 2014; Guajardo, Cohen, & Netessine, 2015). For instance, Nyadzayo and Khajehzadeh (2016) explored how service quality affects customer loyalty through the mediating role of CRM quality in South Africa. Izogo and Ogba (2015) explored the dimensional structure of the SERVQUAL scale in the automotive-repair context in Nigeria's market.

Product quality may be one of the essential components in the marketing mix, but little attention has been given to understanding the impact of consumers' perceived global quality of their intention to purchase in the automotive context. According to Shah (2010, p. 171), "marketing scholars have overwhelmingly emphasised service quality, ignoring product (goods) quality," especially in automotive markets where service and products come together.

Therefore, this study aims to understand customers' automobile quality perception based on the consumer's point of view. For that, a qualitative study was done. After that, we developed a quality-perception construct, using different dimensions compared with traditional ones, such as corporate responsibility, or brands/company tradition perception. These new dimensions help us develop a global perspective on automobile quality based on consumers' opinions.

In addition to that, this paper develops and tests a model of post-buying behaviour by automobile owners. The focus was on studying perceived quality by automobile owners and its behavioural consequences relating to these cues: satisfaction, price perception, reliability, pride, regret, word-of-mouth communication and predisposition in buying automobiles from the same brand.

Therefore, this paper objectives to understand the global perceived quality that impacts on automobile consumers to repurchase a car. For that to specifics objectives were developed: first, to recognize the main aspects that consumers consider when they are evaluating the quality of a car, second, to test it in an empirical model.

The contributions to the marketing field are: first, it measures the perception of the global quality of automobiles in post-purchase situations, exploring not only attributes in service quality but also the product itself, while exploring other dimensions from the quality-perception construct. Second, we studied the perception of quality affecting behavioural dimensions beyond the satisfaction construct: regret, reliability, pride, and word-of-mouth communication. Third, we complement the international studies of quality perception in a critical, but little-explored market: the Brazilian automotive market.

2 THEORETICAL REFERENCE

This theoretical background is structured as follows: we first present an overview on quality perception, then we focus on the Impact of Global Automotive Consumers Perceived Quality. Then, the hypotheses from a model is presented, ending this chapter with a full model that will be tested.

2.1 Quality Perception

Perceived quality is a central element in business strategies (Golder, Mitra, & Moorman, 2012). According to Zeithaml (1988), "quality" refers to measured and verified superiority in any predetermined ideal pattern. A perceived quality level is used to measure the benefits about a set of cues (Golder *et al.*, 2012). Similarly, in service, the perception of quality exists when a firm delivers service quality that meets or exceeds customers' expectations (Izogo & Ogba, 2015).

Quality perception can be seen differently, depending on the person, place, or even the product (Golder *et al.*, 2012; Oude Ophuis & Van Trijp, 1995). Quality perception depends on: a) the product/service: the evaluation the consumer makes on the intrinsic qualities of the product/service; b) the individual: beliefs, prior experiences, mental associations, emotions, symbolism related to the product and/or brand; c) usage: functionality, frequency of use, and moments of product usage; and d) perception of the goods and services as a whole.

Therefore, assessing a product's quality is not limited to the product itself, but also to the built-

in services that come with it and that are provided by the company, the customer-company relationship, and the experiences during this relationship. In this line of thought, one can say that total quality is seen as the sum of product attributes (tangibles or intangibles) that are viable for being evaluated by consumers.

The quality includes the companies, the consumers, and the market perception. The companies concentrate on offering quality goods and services, consumers try to find quality goods and services, and the market follows the changes offered through quality (Roland, Zahorik, & Keiningham, 1995). However, in a post-purchase situation, the consumer's global perception of quality can change consumer behaviour.

Several works have advanced the understanding of service-quality measurement. Different instruments have been used to try and understand consumers' perception of service or products. In the product perspective, the intuitive approach considers quality an innate characteristic of the product, conferring excellence on it. Besides, measures have quantified the products' attributes. In this case, quality is defined as conforming to projects' specifications. Usually, in the service market, the authors have focused on the service-delivery process (Kang & James, 2004), although other dimensions such as technical and image are also important to understanding consumers' quality perception.

Therefore, to measure the global quality perception of automobile consumers in post-purchase situations, the present study focused on exploring attributes from functional quality, technical, and image dimensions. These three dimensions are based on the SERVQUAL instrument, adapted by Kang and James (2004), which aims to track the development of consumers' global quality perception in an automotive post-purchase context that will be described in the first study.

2.2 Understanding the Impact of Global Automotive Consumers Perceived Quality

The present paper proposes to test the impact of global perceived quality (GPQ) in a post-purchase context. For this, a model is presented. The relationship among the constructs was developed as a hypothesis and tested beforehand.

Etymologically, "satisfaction" comes from the Latin "*satis*" (sufficient) and *facere* (do), which, according to Oliver (1997), is what provides sufficiency. There are two primary aspects of a client's satisfaction process. The first is delivering the goods or services acquired. The second is the way this delivery is carried out, thereby establishing

customer expectations on how the service should be. This expectation, although out of the consumer's reach, as it is a factor intrinsic to the consumer's psyche, is of the utmost importance when gauging the client's satisfaction (Zeelenberg & Pieters, 2004).

The concepts of satisfaction and quality are narrowly connected because satisfaction is a post-purchase judgment coming from the comparison between perceived performance and client expectations (Chenet, Tynan, & Money, 1999; Golder et al., 2012). Many researchers have shown that there is a positive relationship between perceived quality and satisfaction (e.g. Brady & Robertson, 2001; Fornell, Johnson, & Anderson, 1996). Therefore, based on previous research, our first hypothesis when testing the model was defined as such:

H₁ – Perceived quality presents a positive monotonic relationship on Satisfaction.

Regret is a psychological state induced by comparing the results of choice made with the results of passed-over choices. In other words, it manifests itself when the possibility of something better could have happened if the consumer had chosen differently (Inman, Dyer, & Jia, 1997).

Regret is commonly associated with the idea of a lost opportunity from a mistake made by the consumer, generating self-recrimination and the urge to repair it. Consumers who have experienced regret also have presented the desire (objective and motivational) to improve choice performance and also manifested the wish to have another chance to do it all over again (Roseman, Wiest, & Swartz, 1994).

As the opposite of satisfaction, regret also possesses a similar nature (Tsiros, 1998). The difference is that while there is an internal reference to satisfaction, meaning the perceived performance by the customer is compared with previous expectations, in regret, reference marks are external (other options). This shows that with regret, a comparison is made between the chosen-option performance and the passed-over alternative performances (perceived or imagined) during the decision-making process. The consumer might be satisfied with the chosen option if the product's performance has achieved or exceeded expectations, but at the same time, he or she might believe that other passed-over options could have led to a better outcome, leading him or her to regret the choice made (Vieira, Souki, Gonçalves Filho, & Reis, 2010).

Therefore, if the perception of quality in the post-purchase situation is not achieved, regretful feelings can be an outcome. This assumption leads to the second hypothesis.

H₂ – Perceived quality presents a negative monotonic relationship with regret.

In addition to that, if regret is not satisfied, and regret is a negative outcome of the product or service, it is possible to assume that the satisfaction and regret have a negative relationship. In this direction, many researchers have shown that regret is the result of bad decisions and unconfirmed expectations that produce dissatisfaction (Zeelenberg & Pieters, 2004). With this, H₃ is described.

H₃ – Regret has a negative influence on satisfaction.

According to Moorman, Deshpandé and Zaltman (1993, p. 82), 'trust can be defined as the willingness to believe in a business partner to whom one can trust to tell the truth'. Trust is a party's expectations that the other will behave in such a predictable manner in any given situation (Grönroos & Gronroos, 2000, p. 37). Predictability is based on past relationships and experiences, and develops over time (Grönroos & Gronroos, 2000; Moorman, Deshpandé, & Zaltman 1993). Morgan and Hunt (1994, p. 23) comment '... there is trust when one of the parties involved believe in the integrity and safety of the other'.

Trust involves vulnerability and uncertainties. The basic premise of risks and uncertainties is of fundamental importance to the very existence of the trust. This line of thought considers that trust includes the predisposition of accepting risks, once it is based on the positive expectation of one's intentions or behaviour. As a result, the trust would increase cooperation among business partners, and there would be a reduction in conflicts and more commitment to the relationship.

Therefore, it is recognised that consumers' trust – related to companies, brands, or products – is associated with the perception of qualities such as consistency, competence, honesty, integrity, responsibility, and kindness, besides having a central role in promoting cooperation among the parties (Morgan & Hunt, 1994). With that in mind, it is time for H₄.

H₄ – Global perception of consumer quality has a positive relationship with consumers' perception of trust.

However, if the perception of quality has an effect on satisfaction, and positive satisfaction is an outcome evaluation of the company, it is not difficult to think that satisfaction is also related to trust. One study that explored this relationship came from Vieira *et al.* (2010) and demonstrated the existence

of a strong connection between clients' satisfaction and their trust in physiotherapist services. Then, the next hypothesis assumes that satisfaction has a positive relationship with Trust.

H₅ – Consumer satisfaction can positively influence trust in the product.

According to Zeelenberg, Van, e Manstead. (2000), regret is an evident emotion connected with decision making. More specifically, people who experience regret are more aware of bad decisions and tend to correct mistakes. Moreover, it is easier for people's trust to strengthen when gratitude and happiness are involved (Dunn & Schweitzer, 2005), the opposite of regretful emotions. Martinez and Zeelenberg (2015), comparing regret and disappointment, found different outcomes with trust and manipulated the emotions in interpersonal decisions and interactions. As a result, they found that regret decreases trust in the other participant. Through this logic, we hypothesize that the negative emotions such as regret decrease trust in a company.

H₆ – Regret has a negative monotonic relationship with trust.

In word-of-mouth communication, individuals exchange information through, but not limited to, phone conversations, face-to-face encounters, and the Internet. This communication happens in a process that manifests positive, negative, or neutral opinions (Murtiasih, Sucherly, & Siringoringo, 2014).

Consumers can provide negative opinions about their purchases to others, but customers who develop trust with companies usually protect their purchases, avoiding negative descriptions. They have proper reasons to maintain the relationship with the companies. This trust has a positive influence on motivations to improve a mutually beneficial buyer-seller relationship (Selnes, 1998).

Hence, according to Sheth and Parvatiyar (2000), the higher the trust and the connection between the company and consumer, the higher the impact caused by word-of-mouth communication with people. Based on that, we assume that consumers who trust in companies may comment and refer the product or service to others. Therefore, the seventh hypothesis can be established:

H₇ – Trust has a positive impact on word-of-mouth communication/referrals.

Feelings of pride are directly connected with experiencing success, to the 'can do' feeling one compares with others. This feeling is manifested by the social comparison as a self-evaluating function

through successful experiences with elevated results, in an apparent counterpoint to the anxious feelings brought on by failure (Oveis, Horberg, & Keltner, 2010).

Harter (1996) said pride and self-concept are related and therefore the first is conceived as a theoretical construction that the individual imposes on himself through his interactions with the social environment. This self-construction is a reflection of the perceptions, conjectures, and creations that the individual imagines his image has on others, the judgment they (significant others) make about the individual, added to some personal feeling (pride or shame) that results from this social gathering.

Trusting the brand brings motivation to improve a mutually beneficial buyer-seller relationship (Selnes, 1998), but when the product

purchased or the relationship with the company is an extension of the self, this trust can evoke positive emotions. More specifically, it is possible for the trust to become the consumer's pride (Kuenzel & Halliday, 2008).

In the case of the automotive market, the car can be considered an extension of the owner's personality, once it grants a sensation of power, protection, velocity, and even masculinity (Langner, Hennigs, & Wiedmann, 2013).

Therefore, people who trust what they are purchasing might feel pride in their latest acquisition, especially toward long-lasting goods such as automobiles, which are exposed to other people. With this, we have the last hypothesis.

H₈ – Trust has a positive relationship with pride.

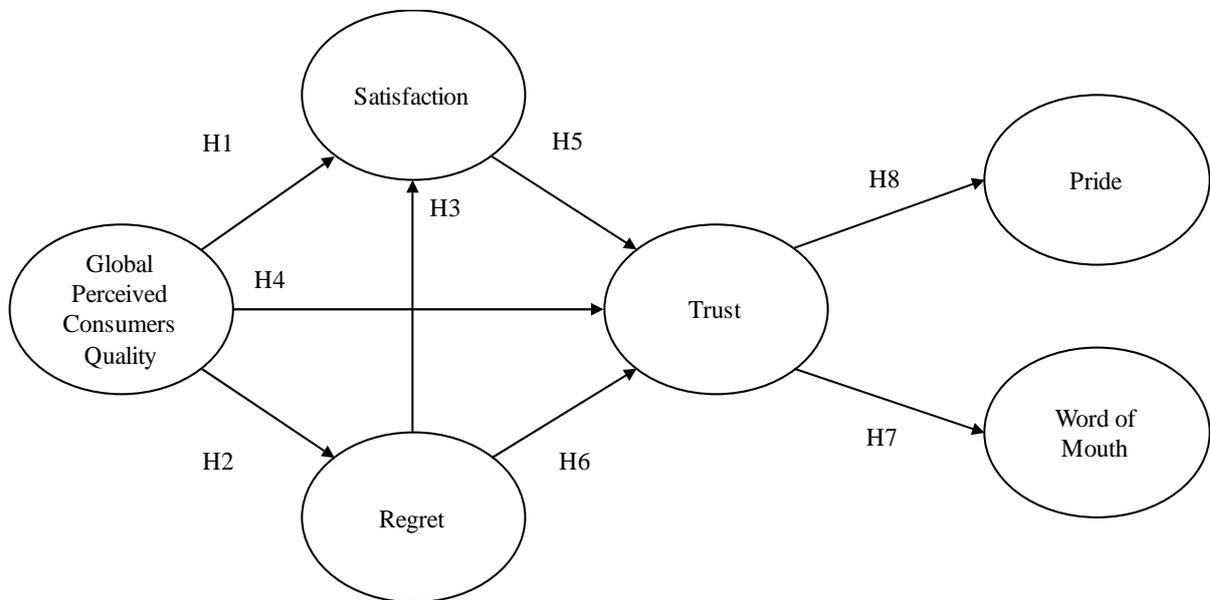


Figure 1 – Model Proposed.

3 METHODOLOGY

This study aims to understand the global perception of automobile quality based on the consumer's perspective. For that, a model of post-buying behaviour by automobile owners was developed and tested. The aim was to gauge the perceived quality by automobile owners and its behavioural consequences relating to these cues: satisfaction, price perception, reliability, pride, regret, word-of-mouth communication, and predisposition in buying automobiles from the same brand.

This research was developed in Brazil, where national automobile production was

approximately 2.59 million units in 2017. The Brazilian automotive industry's annual turnover in 2016 had been around US\$ 41.33 billion, employing 108.564 people Associação Nacional dos Fabricantes de Veículos Automotores [ANFAVEA] (ANFAVEA, 2018). Brazil is seventh in the world in size of the vehicle fleet. There are 41,4 million automobiles in the country, which corresponds to 198 automobiles per 1,000 people (ANFAVEA, 2018). The Brazilian market has been hugely profitable and promising, attracting all of the most significant global automotive companies.

Car owners in Belo Horizonte, Minas Gerais, Brazil, were used for the survey population because this city is a good representative of the

Brazilian automotive market, being the second-largest consumer of automobiles in the country (ANFAVEA, 2018). Moreover, according to the report published by the Metropolis Observatory (Observatório dos Metr6poles - 2017), in the period 2001-2016, Belo Horizonte was the city that recorded the third highest percentage of Brazilian car growth in the period from 2001 to 2016 (169.4%). This growth is much higher than the Brazilian national average.

The vehicle fleet has nearly doubled in the last decade, from 866,304 units in 2006 to 1,714,947 in 2016 National Traffic Department [Denatran], (Denatran, 2018). Thus, the annual average increase in the number of cars in Belo Horizonte was 84,864 in the last ten years.

This research was conducted in two stages, the first qualitative and the second quantitative. The qualitative stage aimed to identify which quality variables are perceived by car owners and what were their relations with the constructs related to behaviour considered in this study. In this step, 20 in-depth interviews were conducted involving car owners of various brands, which were selected by a non-probabilistic sampling system for convenience. Although there is no concern with statistical significance in the qualitative stage of the study, the researchers were careful to consider car owners with different profiles to get a broader view of quality attributes considered by different consumer profiles.

To carry out the qualitative interviews, semi-structured questionnaires were used based on the theoretical framework. The main questions in the script were: "I would like you to talk about your experience with your current car." "What does it mean to you to have a car of this brand?" "In your opinion, what does a good automaker offer its customers?" "What attributes do you consider as a minimum that a car has?" "What attributes do you consider differentiators in a car?" "In your opinion, what should an ideal car offer its owner?" "What are the strengths and what are the weaknesses of your current car?" "What are the positive and negative emotions you have felt about your current car?" "Are you satisfied with your current car? Why?" "Do you trust your current car? Why?" "Do you have pride in owning your current car? Why?" "Have you ever felt sorry for having bought your car? Why?"

The duration of qualitative interviews was approximately 25 to 35 minutes. Respondents were approached on high-traffic streets and public places, such as gas stations and parking lots at supermarkets and shopping centers. All interviews were recorded and transcribed for later analysis.

The results obtained from the qualitative interviews were analysed using content analysis techniques by categories, seeking to identify quality attributes perceived by car owners. The main results

were directly related to automobiles and the manufacturers that affect the perception of quality by owners. The automobiles could confer power and status on their owners because respondents highlighted aspects such as respect, prestige, notability, status, and power during the qualitative interviews. Furthermore, the owners also highlighted some attributes related to the drivability of the automobile, such as answering promptly to the driver's commands, good stability, visibility, and a good suspension system. Respondents also mentioned the car's resistance to different road conditions (dirt road or asphalt) as an important qualitative feature to be evaluated. The respondents affirm that the internal space and trunk capacity should be considered as a relevant quality feature of cars.

The aspects that affect the perception of quality by owners regarding manufacturers are the recognition, tradition, and image of the brand. Also, automobile owners value companies that are environmentally conscious, that play an influential role in society, and that care about their customers. Such attributes were included in the quantitative questionnaire, along with the constructs related to the behaviour of respondents (satisfaction, regret, trust, pride, and word-of-mouth communication/recommendation), which are described in the theoretical framework of this study.

The quantitative phase of the research was conducted through a single cross-survey involving car owners of different brands and models living in Belo Horizonte, Minas Gerais, Brazil. The participants were personally interviewed using a semi-structured questionnaire with scales of agreement or disagreement (Likert type) adapted to 11 points, with (0) meaning "strongly disagree" and (10) representing "totally agree". We opted to use a score from 0 to 10 because Brazilians schools use this format to grade exams, and the population is used to evaluate things in this way. Before starting the application, the questionnaire was submitted to three experts in active marketing in the automotive industry for evaluation and refinement of the scales.

Respondents invited to participate in the survey were found on busy streets with a high number of people, in parking lots, at gas stations, and at other busy public places in the city. Those who agreed to participate went through an initial screening to verify they were part of the desired target audience (only car owners, those older than 18, owning car brands available in the market). As a test of research, they were asked whether they owned one or more cars, as well as the cars' makes, models, and years. Those who had more than one car were instructed to answer the survey based on the car they used most often. Altogether, 329 car owners participated in this step, filling in the self-

administered questionnaires.

In the next chapter we present the analysis of the quantitative research, describing how we organized the data, followed by a description of the data, factor analysis, discriminant and path analysis.

4 QUANTITATIVE RESEARCH ANALYSIS

4.1 Organizing the Data Base

After eliminating questionnaires due to missing data or outliers, 311 questionnaires were considered valid and able to be statistically analysed. Descriptive and exploratory analysis of the data was conducted, as was missing-data analysis, outlier analysis, factor exploratory analysis, reliability, normality analysis, linearity, convergent validity, discriminant validity, and nomological validity of the constructs included in the model, following the recommendation of the statistical literature (Bagozzi, Yi, & Phillips, 1991; Hair, Black, Babin, Anderson, & Tatham, 2009; Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014).

Missing random data was classified as missing at random (MAR) when a missing variable Y depends on X, but not on Y and missing completely at random (MCAR), when Y values are just a random sample from all values Y can obtain, not generating obliquities to the observed data (Hair et al., 2009). It was verified that 18 interviewees had 10% or more missing data. Due to the excessive amount of missing data of these interviewees, they have been excluded from the analysis.

The magnitude of missing data was evaluated after the exclusions, and 486 cells were found having missing data based on a universe of 23,947 cells. This number represents 2.00% of the total, distributed among the interviewees. To verify whether such missing data are random or not, the SPSS Little's MCAR test was conducted (J. F. Hair et al., 2009). The test has shown a significance below 1% (Little's MCAR test: Chi-Square = 13164,831, DF = 12264, Sig.0,000), showing that the analysed data are not MCAR. Leaving out the missing data would substantially reduce the sample, it was chosen to substitute them through their average (Hair et al., 2009).

The analysis of univariate and multivariate outliers carried out four atypical observations: (1) procedural mistake, as a data-entry mistake or a failure in coding; (2) observations carried out due to extraordinary events; (3) extraordinary observations for which the researcher has no explanation; and (4) observations that are in the usual value gap from each variable, but are unique in value combination among their variables (Hair et al., 2009). Type-one related there could not be found any values out of the

predicted scale limits used from 0 to 10. The existence of atypical univariate observations (type 2 or 3) was verified employing a commonly used method that consists in the standardisation of results in such a way that the average of the variables is 0 and the sample standard deviation is 1. In the present analysis, it has fallen back to the score criteria from -3.24 to 3.24 as an atypical observation. We found 163 observations with scores out of the margin of -3.24 to 3.24, distributed in 31 variables and divided into 73 case studies. However, to maintain the sample consistency, it was preferred to keep such case studies in the analysis. Also, the existence of atypical multivariate observations was verified (type 4). The D² Mahalanobis measure was employed in such cases. The Chi-square test was used to verify the significance of the measure in lower than 0.001 values, which are considered outliers. We found 42 atypical multivariate observation case studies, but for the same reason previously described, it was decided that it was best to keep these case studies in the analysis.

4.2 Descriptive Analysis

The survey results show that 63.3% of respondents are male, 73.0% were between 25 and 54 years old (mean 39.1 years and standard deviation of 12.5 years), and family incomes ranged between R\$ 2,000.00 and R\$ 12,500.00, but with a higher concentration (65.9%) up to R\$ 5,000.00. In relation to education, 26,4% participants finished secondary education, 17,7% were acquiring a higher education and 48,2% completed it. Also, 50% of the female interviewees were married and 38.1% were single. It was revealed that 44.2% of the interviewees did not have children. Most participants (84.2%) have only one automobile, and 15.8% have two or more. The automobiles that prevail are popular cars (54.1%) or sub compacts (25.2%). Fiat was the most frequent automobile brand in this research sample, being named by 45.2% of participants. Following it was Volkswagen, with approximately 19.9%, and Chevrolet, with 11.8%. It is important to emphasise that Fiat has a manufacturing plant in Brazil located in Belo Horizonte, exactly where the research was conducted.

4.3 Factor Analysis

A factor analysis with quality attributes was included in the questionnaire so the latent dimensions of the perceived quality of automobile owners relating to their cars could be evaluated. As an extraction method, the researchers chose the principal components option. We used the rotation method (Varimax), permitting subjacent dimensions

to be correlated, once the used scales are a reflex of a multidimensional construct (J. F. Hair et al., 2009).

To define the factors, a number Eigenvalue criterion was applied. The factor solution found has presented a KMO of 0.832 and a TEB of 3118,281 (sig. to 1%), and the explained variance was 76.5% with seven factors. Table 1 shows the factor loadings, the communalities, and the explained variance to the encountered factors. An adequate

factor solution presents a KMO value between 0.500 and 1.000. The communality to each indicator must be superior to 0.400 (Hair *et al.*, 2009). Nonetheless, it is expected that the factor solution might explain at least 60% of the total data variance, indicating that the data reduction can explain a considerable amount of the existing variation (Hair *et al.*, 2009). Therefore, one might be able to say the factor has successfully accomplished its purpose.

Table 1 – Factor solution to the Global Perceived Quality construct

Constructs	Indicators	Factor Loading	Communality	Explained Variance
Q1 – Power and Status	confers power to its users	0.915	0.896	18.18%
	confers status to its users	0.889	0.878	
	confers nobility to its users	0.885	0.848	
	confers prestige to its users	0.861	0.819	
	confers respect to its users	0.652	0.541	
Q2 – Drivability	answers promptly to the driver's commands	0.834	0.804	13.57%
	has good stability	0.816	0.773	
	offers good visibility	0.806	0.704	
	has a good suspension system (damper and spring)	0.699	0.699	
Q3 – Corporate responsibility	manufactured by an environmentally-conscious company	0.904	0.852	10.43%
	manufactured by a company that plays an important role in the society	0.857	0.788	
	manufactured by a company that is customer-conscious	0.729	0.684	
Q4 – Brand and company's tradition	it is from a traditional brand in the market	0.891	0.854	9.63%
	it is from a recognized brand in the market	0.888	0.814	
	it is from a brand with a good market image	0.627	0.521	
Q5 – Resale and maintenance	Easy reselling	0.832	0.722	8.62%
	nice reselling value	0.740	0.629	
	easy to find spare parts	0.706	0.564	
Q6 – Automobile's resistance	resistant to bad conditioning tracks (for example roads in poor condition or dirt)	0.882	0.894	8.44%
	can drive either on a dirt road or asphalt	0.871	0.877	
Q7 – Internal space and trunk capacity	it has a spacious trunk	0.842	0.824	7.65%
	ample internal space	0.825	0.849	

A different factor analysis was conducted with issues on the behaviour of automobile owners toward their cars. As a result, the KMO values were superior to the minimum established to literature (0.600), and TEB rejected the null hypothesis that

the correlation population matrix is an identity ($p < 0.1\%$). The factor solution found to fit the constructs that measure the behaviour of automobile owners is presented in Table 2.

Table 2 – Factor solution that aims measure the owners' Behaviour.

Constructs	Indicators	Factor Loading	Communality	Explained Variance
Satisfaction	I am pleased with this automobile.	0.962	0.926	92.32%
	This automobile has met my expectations.	0.962	0.918	
	I am happy with my decision to purchasing this automobile.	0.958	0.925	
Trust	I feel safe in possessing this automobile.	0.929	0.782	78.67%
	I trust this automobile.	0.884	0.864	
	I strongly believe this automobile will not leave me stranded.	0.845	0.714	
Pride	I feel pride in possessing this automobile.	0.919	0.727	79.52%
	I feel pride when telling people I own this automobile.	0.902	0.845	
	Using this automobile is my honor.	0.853	0.814	
Regret	I regret having this automobile.	0.855	0.731	73.75%
	If I were possible, I would never have bought this automobile.	0.885	0.784	
	I believe I would be happier if I had bought a different automobile.	0.843	0.711	
	I feel frustrated in possessing this automobile.	0.850	0.723	
Referral / Word of mouth communication	I refer to people from my circle to have the same automobile as I do.	0.860	0.740	69.07%
	I can only say positive things about this automobile to people from my circle.	0.896	0.802	
	I would not like for people to speak poorly of this automobile.	0.728	0.530	

To check whether the scale is free from random mistakes, an analysis of the reliability of the scale was performed. More specifically, the Cronbach's Alpha values were checked. In all of the constructs, the alphas were superior to 0.70, and in some cases, this result reached 0.96.

4.4 Structural Equations Modelling Analysis

Data treatment was done with statistical procedures of multivariate analysis, especially Structural Equations Modelling (SEM), which permits the transitioning from exploratory analysis to a confirming perspective (Hair *et al.*, 2009). Microsoft Excel®, IBM SPSS® version 21 and AMOS® 20.0 software was used for data treatment.

The convergent validity aimed to identify whether a construct was adequate to measure the latent interest dimension. The divergent validity was measured by evaluating whether the constructs effectively measure different aspects of the interesting phenomenon (Hair *et al.*, 2009).

To test the factor models, the estimate of minimal generalised squares was applied, as the estimators for this function do not have multivariate data normalcy as an assumption. The latent

constructs were identified fixating the factor variance in the unity (1), assuming constructs in a standardised way.

Relating to the convergent validity of the measurable constructs and the perceived automobile quality, the criterion suggested by Bagozzi *et al.* (1991) was used. Such a criterion indicates that the factor-loading significance of the constructs needs to be verified to the level of 5% or 1% usually using one-tailed t-tests, in which critical t corresponds to 1.65 ($\alpha=0.05$) or 2.236 ($\alpha=0.01$). All the indicators have met the minimum necessary values for the convergent validity presupposition.

The Average Variance Extracted (AVE) and Composite Reliability (CR) tests also were performed. According to Tabachnick and Fidel (2012), the AVE must be superior to 0.50 and the composite reliability superior to 0.70. All of the constructs' results have measured themselves within acceptable limits. The construct with the lowest ratings was Q5- Resale presenting AVE 0.54 and CR 0.70. On the other hand, the highest-rated construct was satisfaction, with an AVE of 0.89 and a CR of 0.96.

To evaluate the discriminant validity of the constructs, the method developed by Fornell and

Larcker (1981) was employed. The suggested procedure by such authors consists on having a CFA done via the minimum generalised square method and comparing the square of the correlation's coefficient among the pairs of constructs with the average variance extracted from the constructs. This analysis's results are available in Table 3.

The shared average variance among the indicators and their respective constructs is superior to the shared variance among the constructs themselves. This shows that the scales used effectively measure different constructs. In this matter, one can affirm that all of the constructs in the present study have presented discriminant validity evidence.

Table 3 – Discriminant Validity of the constructs

Construct 1	Construct 2	Correlation ²	AVE1	AVE2
Q1 – Power and Status	Q2 - Drivability	15%	76%	60%
Q1 – Power and Status	Q3 – Corporate responsibility	8%	76%	69%
Q1 – Power and Status	Q4 – Brand and company's tradition	0%	76%	60%
Q1 – Power and Status	Q5 – Resale	2%	76%	54%
Q1 – Power and Status	Q6 – Automobile's resistance	6%	76%	78%
Q1 – Power and Status	Q7 – Internal space and trunk capacity	15%	76%	70%
Q2 – Drivability	Q3 – Corporate responsibility	11%	60%	69%
Q2 – Drivability	Q4 – Brand and company's tradition	1%	60%	60%
Q2 – Drivability	Q5 – Resale	4%	60%	54%
Q2 – Drivability	Q6 – Automobile's resistance	17%	60%	78%
Q2 – Drivability	Q7 – Internal space and trunk capacity	20%	60%	70%
Q3 – Corporate responsibility	Q4 – Brand and company's tradition	6%	69%	60%
Q3 – Corporate responsibility	Q5 – Resale	12%	69%	54%
Q3 – Corporate responsibility	Q6 – Automobile's resistance	6%	69%	78%
Q3 – Corporate responsibility	Q7 – Internal space and trunk capacity	5%	69%	70%
Q4 – Brand and company's tradition	Q5 – Resale	3%	60%	54%
Q4 – Brand and company's tradition	Q6 – Automobile's resistance	0%	60%	78%
Q4 – Brand and company's tradition	Q7 – Internal space and trunk capacity	1%	60%	70%
Q5 – Resale	Q6 – Automobile's resistance	9%	54%	78%
Q5 – Resale	Q7 – Internal space and trunk capacity	1%	54%	70%
Q6 – Automobile's resistance	Q7 – Internal space and trunk capacity	17%	78%	70%
Satisfaction	Trust	64%	89%	73%
Satisfaction	Pride	47%	89%	76%
Satisfaction	Regret	32%	89%	66%
Satisfaction	Referral / Word of mouth communication	39%	89%	60%
Trust	Pride	48%	73%	76%
Trust	Regret	19%	73%	66%
Trust	Referral / Word of mouth communication	39%	73%	60%
Pride	Regret	13%	76%	66%
Pride	Referral / Word of mouth communication	49%	76%	60%
Regret	Referral / Word of mouth communication	6%	66%	60%

The model Global Perceived Quality (GPQ) was considered as a second-order reflexive construct. The variance of the second order reflexive construct was fixated on 1 (Tabachnick and Fidel, 2012). The GPQ presents a bigger impact on the construct Q2 – drivability (0.773), followed by Q7 – internal space and trunk capacity (0.613), then Q1 – power and Status (0.589), Q6 – automobile's resistance (0.564), Q3 – corporate responsibility (0.470), Q5 – resale value (0.325), and Q4 – brand and company tradition (standardised loading of 0.288). It is noteworthy that all previously mentioned standardised loadings are meaningful if 5% levels were reached.

Running the SEM, it was possible to observe that all of the hypotheses were supported. The perceived quality presents a positive monotonic relationship on satisfaction ($\beta=0.506$), supporting

H₁. The perceived quality has a negative monotonic relationship with regret ($\beta= -0.414$), and a positive relationship with Trust ($\beta=0.386$), in agreement with H₂ and H₃. H₄ was relating regret and satisfaction. The analysis shows that regret had a negative influence on satisfaction as proposed in the theoretical model ($\beta=-0.386$). Consumer satisfaction can influence positively the product's trust (H₅) ($\beta=0.531$), but regret has a negative influence (H₆) ($\beta=-0.032$). As a consequence, trust has a positive impact on word-of-mouth communication/referrals (H₇) ($\beta=0.657$) as in pride (H₈) ($\beta=0.769$). All of these loads are significant at 5% levels. Figure 2 shows the structural model obtained in the present paper.

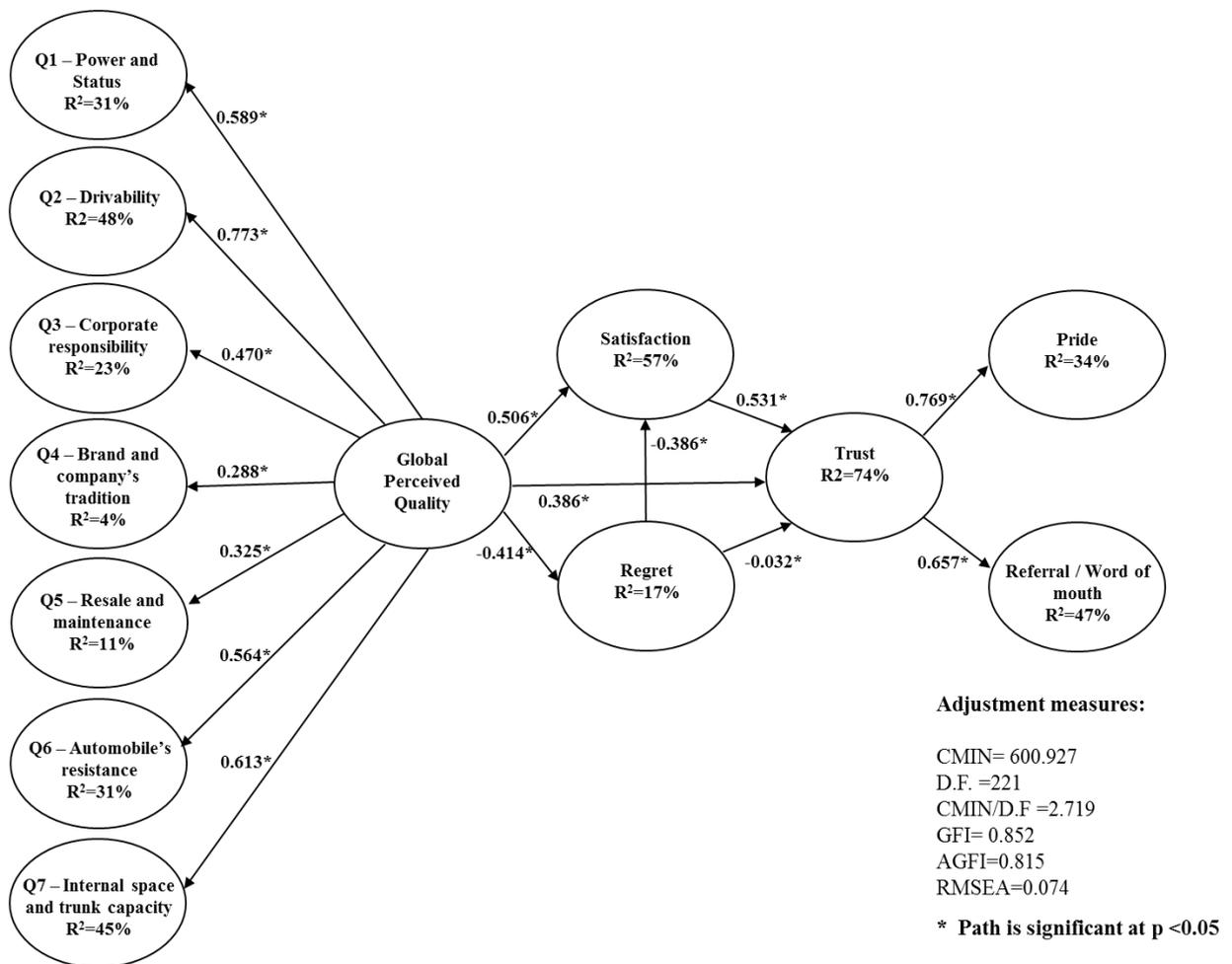


Figure 2 – Structural model test.

GPQ together with regret was able to explain 57% of the variation in satisfaction. Furthermore, GPQ explained 17% of the changes in regret. Satisfaction (0.531), regret (-0.032), and the

GPQ (0.386) together explained 74% of trust. Trust can explain 34% of changes in pride, with a 0.769 load, and 47% of changes in referral/word-of-mouth

communication, with a load of 0.657, both significant at 5% levels.

A model's quality of adjustment measures the correspondence of the real entry data in the matrix or the observed data (co-variance or correlation) with the one foreseen in the model (Hair *et al.*, 2009). To verify the absolute adjustment of the model, the RMSEA (root mean square error of approximation), measured in 0.074, was used, and to evaluate the parsimonious adjustment, the CMIN/D.F. (chi-square staggered), measured in 2.719, was used -- both accordingly to the parameters defined in literature (Hair *et al.*, 2009).

5 CONCLUSIONS

There is a bunch of research in service quality and its behavioural intention, however as commented by Mangini, Urda and Santos (2017) "this does not suggest that this theme [...] is closed.". Furthermore, investigating the perception of quality in service and product at once is not very common. Therefore, the present paper investigated the global perception of automobile quality based on consumers' perspective. For that, a model of post-buying behaviour of automobile owners was developed and tested. The focus was checking the perceived quality by automobile owners and its behavioural consequences relating to these cues: satisfaction, price perception, reliability, pride, regret, word-of-mouth communication and predisposition in buying automobiles from the same brand.

The global perceived quality was formed by power and status, suggested by Langner *et al.* (2013), drivability, automotive resistance and internal space and trunk capacity, attributes from the car as presented by Kang and James (2004), corporate responsibility, brand and company tradition, resale value and maintenance.

Drivability and brand and company tradition were the two constructs with the most extreme loadings in the proposed model. While drivability had a loading of 0.773, brand and company tradition had 0.288. However, it is important to highlight that the present study emphasizes the post-purchase evaluation, meaning owners evaluated the automobiles they had at the moment the interviews were conducted. It is believed that if this research were conducted with potential automobile buyers in the stage of pre-buying alternative evaluation, the results possibly would be different.

As approached in this study, there are many given definitions by several authors on satisfaction (Golder *et al.*, 2012; Oliver, 1997; Marcel Zeelenberg & Pieters, 2004), regret (Inman *et al.*,

1997; Roseman *et al.*, 1994; Tsiros, 1998; Zeelenberg *et al.*, 2000), trust (Grönroos & Gronroos, 2000; Moorman *et al.*, 1993; Morgan & Hunt, 1994), and word-of-mouth communication/referral (Murtiasih *et al.*, 2014; Selnes, 1998; Sheth & Parvatiyar, 2000) constructs. Although independent of each other, the constructs suffer from direct impact when the reflexive construct -- in this paper, the Global Perceived Quality (GPQ) -- suffers from any alteration.

In the model, a direct proportionality between GPQ and satisfaction and regret is observed. Inverted to satisfaction (positively related), regret (negative related) also had a direct relation to GPQ as supported by the literature (Tsiros, 1998; Vieira *et al.*, 2010).

Also, the GPQ had a positive and direct effect on trust. Not astonishingly, regret had a negative relationship to trust. This means that when regret occurs, consumers do not trust the product or service offered. Trust can be explained based on satisfaction and regret levels in which the greater the satisfaction and the lower the regret, the bigger the consumer's trust will be. It has been established that trust is responsible for explaining a great part of consumers' pride in possessing assets, as well as referral/word-of-mouth communication.

From this model, we can affirm that GPQ offers the necessary incentive to consumers to manifest their feelings and behaviours toward their automobiles. Hence, GPQ generates impacts on consumers' satisfaction and regret, while reflecting in other consumers such relevant constructs as trust, pride and word-of-mouth communication/referral.

Among the limitations of this research, it should be noted that the obtained sample was non-probabilistic for convenience and accessibility. A cross-sectional cut was performed, portraying the reality in a single moment in time. Although Belo Horizonte is a great and very relevant city, it was only one Brazilian city. To assess the validity and reliability of the proposed model in different markets, this research should be applied in different localities, not only in Brazil but also globally.

It is also interesting to investigate whether domestic or international brands were perceived differently. Understanding companies' crises or untruthful situations also can elicit differences in consumer reactions, one example being the Volkswagen emissions-fraud case in 2015. The influence of online social media, forums, or recommendations was not within the scope of this paper, but could very well be added to the model.

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