

CASE STUDY

Purchase Intent of an Electronic Product and Online Consumers Reviews: An Experiment on the Internet

Almeida Tatiane NV^{1*}, Ladeira Rodrigo², Pereira, Fernando AM³

¹Federal Institute of Education, Science and Technology of Rio Grande do Norte, Brazil.

²Federal University of Bahia, Brazil.

³ University of São Paulo, Brazil.

*For correspondence: E-mail: Almeida Tatiane NV

Abstract

The main goal of this study is to empirically analyze a theoretical model that relates the motivating factors of purchase intent of an electronic product, in context where consumers are faced with online comments. The research method used was experimental, with the participation of 690 university students. The approach was quantitative and the methods used were descriptive statistics, exploratory techniques, confirmatory factor analysis, Student's t Test, and multi group structural equation modeling. The main results were that there is a second degree construct, motivational factors, affecting the purchase intent that was responsible for the biggest change in purchase intent in the analyzed model. The personal order factors such as - confidence and attitude toward the brand - presented the greatest impact on the formation of the second-order construct and on those who, indirectly, explained the most variation in purchase intent. Briefly, the results point to the need for companies to invest in stronger and trusted brands, devoting more attention to communication strategies and maintaining long-term relationships with their customers. Nevertheless, it is noteworthy that online comments should not be overlooked.

Keywords: *Experimental technique, Multi group analysis, Online comments, Online word of mouth, Structural equation modeling.*

Introduction

The globalization of the economy, a more active, informed and connected consumer and the speed of innovation imply an uncertainty and rapid change, and are the main challenge of modern business. In this context, to gain a competitive advantage, many organizations seek to market new products and/or faster services than its competitors. For this reason, the user selection process can be considered relatively complex regarding the high volume of attributes and the range of available options in the market.

The current competitive scenario, in which organizations are immersed, turns the main focus into understanding, meeting the needs and expectations of consumers, and to understand the factors that influence it.

In the 20th century, Richers, the pioneer in marketing studies in Brazil, has pointed out this.

[...] Studies on consumer behavior focused primarily psychological aspects, namely the individual. [...] This approach is expanding to a larger group or sociological view that regards man as a "social animal" highly dependent on other people or reference groups, to shape their judgments, their beliefs and values, and to guide them in the process of choosing products or services. [1].

Currently, we consider the Internet as the main source of information for a large number of consumers who are experiencing the purchasing decision process [2].

When an individual chooses to search or purchase a product online, in e-commerce sites, for example, often is faced with post-purchase comments from other consumers who have bought the same product. These are the online comments, a kind of online word of mouth communication where consumers freely write about their experience and the level of satisfaction they have had with a product, in spaces offered by the companies on their website [3; 4].

Whereas the understanding of consumer behavior becomes a key element to business success, the study of the factors that influence the purchase intention of an electronic product and the influence of online consumers reviews in consumer behavior are the central themes that guide this research. Although in recent years we have had several investigations on online, word of mouth, and online comments, there are still some unanswered questions. For example, that there are some doubts as to whether online comments are really effective because of the anonymity and lack of physical or face-to-face contact [5].

However, many surveys show that consumers are increasingly skeptical about the information provided by the companies, preferring to rely on the opinions and recommendations of other customers [2; 6; 7; 8; 9; 10; 11; 12]. The consumers are motivated to find products that provide greater benefit; however, the literature area consumer behavior shows that this process is not an easy task. Given this context, the objective of the study is to empirically analyze a theoretical model that relates the motivating factors of purchase intention (attitude toward the brand, brand trust, perceived behavioral control, subjective norm and subjective norm/online consumer's reviews), and the intention to purchase an electronic product, in contexts where consumers are faced with positive and negative online consumer's reviews, through an experimental study.

As justification for this research, it is emphasized by the complexity of consumer behavior, and the many consequences brought about by the evolution of the Internet. This fact did not allow a single model or theory to serve as a full

explanation for this whole process. Many aspects of consumer behavior in relation to products that are characterized by the short life cycle are still unknown [13]. In addition, researchers tend to consider only one type of online comment (usually negative), and there is no consensus about which impacts can more influence on the purchase process [14; 15]. Understanding which effects such comments could have on new product purchase intent turns very relevant; as well as the impact on the purchase intention these online comments play in decision-making process, can provide to organizations better conditions to suit these new trends.

To achieve this purpose we organized this paper beginning with the introduction, followed by theoretical foundation and research hypotheses, method, analysis, discussion of the results, and final considerations.

Theoretical Foundation and Research Hypotheses

The theoretical bases for the development of this research are referenced as follows: concepts related to consumer behavior, online consumer's reviews, and purchase intent. The research hypotheses are also presented in this section.

Consumer Behavior and Online Consumers Reviews

Consumer behavior can be a vast and complex field, considering that individuals are influenced by various internal as well as external factors, many times, difficult to observe, measure and understand. Among these external factors, there is the influence of the information and communication technology (ICT), in which the individual comes to play two roles: producer and consumer - the prosumer [16].

Adding to the complexity of the consumer behavior, the increasing variety of new ideas, variations and positioning of new products makes the task of deciding the purchase and consumption an increasingly complex task. In the case of electronics or high-tech products, such as the smartphone for example, the complexity is due to the quantity, variety of available functions, and designs which lead the consumer to have to identify which attributes are relevant [17].

In this context, the word of mouth online communication is a way to overcome the asymmetry of information describing the attributes of the product in terms of usage situations, measuring quality from the user's point of view, reducing the consumer's risk. It is noteworthy that the online word of mouth communication environment is appearing in an amazing variety of configurations [3; 18; 19; 20]. This is a kind of online communication where consumers make positive or negative statements about a product available in stores on the Internet [21]; this definition makes clear in which place such information may be located.

A few years ago, Dellarcas has argued that the word of mouth communication, one of the oldest mechanisms of human society, is acquiring a new meaning through the unique properties of the Internet [18]. Currently, in addition to several studies indicating that individuals tend to search for information about products in the online environment [22], many scholars [e.g. 2; 3; 14; 18; 23] have found that people increasingly rely on the opinions posted on the Internet to take a number of consumer decisions, including those that occur in the offline environment [2; 24].

Complementing several authors [e.g. 12; 20; 23; 25; 26; 27; 28; 29] assert that investigations have supported the claim that the word of mouth is more influential in consumer behavior than the communications controlled by companies-such as advertisements, because they come from individuals who have no commercial interest in persuading someone to buy a product, and therefore don't distort the truth about the performance of the product [7].

Considering the above, companies need to be alert to the changes that have occurred in consumer behavior, caused largely by the development and dissemination of ICTs in order to create new ways to use the virtual environment, adding value to brands, and minimizing negative effects of complaints. As suggested by the Marketing Science Institute Research Priorities [30], which points out the studies of priorities in the field of marketing, the understanding of customers and their experiences (including the purchase decision process), which has

undergone changes due to technology and other forces, is an important issue for this area of knowledge in recent years. Among the factors influencing the purchase decision process, there is the purchase intention that is presented in the following section.

Purchase Intention, its Motivator Factors and the Influence of Online Comments

Over the years, several theoretical models have been proposed in order to explain the reasons and motivations of human behavior, whose contribution to the understanding of consumer behavior cannot be negligent. Among the existing models we considered the Theory of Planned Behavior (TPB), considering that it encompasses individual behavioral and social factors. It is a theory that hypothesis that the intention of an individual to perform a certain behavior can be explained by the attitude of this individual, by a set of subjective norms and the perceived behavioral control by the individual on the conduct in question [31].

The intention of such behavior can be understood as a person's readiness indication to perform a certain behavior and is considered the immediate antecedent of behavior [31]. Concerning the consumer behavior, such construct can be defined as the intentions of consumers to behave in a particular way with regard to the acquisition, provision and use of goods and services. It is noteworthy that the majority of the researches on consumer behavior aim to explain and predict the intention to purchase, considering the difficulty of observing and measuring the actual consumer behavior.

One of the motivating factors of purchase intention is the attitude, related to the feeling toward a person, object, subject or event [32]; so the attitude is a general feeling of a person - of favoring or disfavoring - in relation to any stimulus object [33].

Empirically, several studies have found positive influence of attitude on the various intentions of behaviors, such as: the spreading of negative word of mouth [34], Internet shopping/e-commerce [35], diet and physical exercise [36], buying organic food

[37], purchase of retailer brands [38], choice of higher education (e.g. [39]) and the adoption and use of a technological innovation [40; 41]. However, one of the most worrying problems for consumer behavior field researcher is to explain why, even with a carefully assembled body of knowledge, the attitude of consumers toward a product can fail to predict the buying behavior [8].

Hypotheses

In order to confirm the previous results on the buying process of electronics, we propose that **(H1)** the attitude of the person being studied about the brand is positively associated with the intention of buying a new electronic product of this brand.

Another motivating factor buying intention is subjective norm, understood as the individual perception about the views of important people for a particular individual in the approval or disapproval of behavior [31]. Currently this pressure is often exerted by family, friends, co-workers, and with the spread of Internet, individuals interacting in the online environment.

Many studies have shown the positive influence of subjective norm in various intentions of behavior, such as: spread of negative word of mouth [34], Internet shopping/e-commerce [35], choice of higher education [39] and the adoption and use of technological innovation [40; 41]. In a survey on the adoption of a new technology, Terres et al. proved there is positive relationship between social influence on behavior intention, suggesting that "the opinion and support of the people who are important and influence consumer behavior is an antecedent of intention to adopt a new technology of a particular brand" [42].

Thus, the more favorable is the subjective norm regarding behavior, the stronger should be the behavioral intention [31]. Accordingly, it is believed that consumers are more influenced by subjective standards, or originating from people of certain importance in their lives (e.g. family and friends) or directly impacted by the online communication; this will demonstrate that intentions and buying behavior are compatible with this reaction. Therefore, it

is proposed that **(H2)** subjective norm regarding the brand is positively associated with the intention of buying a new electronic product of such brand, **(H3a)** subjective norm related to positive online consumers reviews is positively associated with the intention of researching by a new electronic product of this brand and **(H3b)** subjective norm related to negative online consumers reviews is negatively associated with the intention of researching by a new electronic product of this brand.

Another motivating factor affecting buying intention is the perceived behavioral control, for example, people's perception of their ability to perform a certain behavior [31]. A research has proven the positive relationship between perceived behavioral control and intention to implement various types of behavior, such as spreading of negative word of mouth [34], Internet shopping/e-commerce [35], diet and physical exercise [36] and the adoption and use of technological innovation [40; 41].

In the electronics segment, the products are becoming more complex, making it difficult for consumers to discern on which options or attributes are best suited to meet their needs. According to Heitmann, Lehamann and Herrmann, consumers with little knowledge about the product, when faced with a large number of alternatives, tend to find it difficult to decide properly on which one to buy [43].

Moreover, according to the authors, individuals who have a greater knowledge about the product tend to process new information efficiently and hence make use of this information in a more satisfactory manner, by selecting the product more easily. In this context, it is proposed that **(H4)** perceived behavioral control is positively associated with the intention of buying a new electronic product of this brand.

Trust is another motivating factor affecting purchase intent, but that is not part of the Theory of Planned Behavior proposed by Azjen [31]. However, this construct has been added to TPB, in a study on the food purchase intentions [44].

Trust can be understood as the expectation of reliability and intentions of the brand in situations involving risk to the consumer (as in the case of introducing a new product on which the consumer does not have much information about its features and functionalities, for example).

In a study on the adoption of new technologies in business-to-consumer exchanges, Terres et al. confirmed that brand trust has a significant impact on the behavior intention [42]. The authors report that the result confirms that "consumers will be more willing to adopt new technology when they believe that the brand is honest, sincere and hard-working to resolve problems that may occur with the product". In this sense, it is proposed that **(H5)** confidence researched about the brand is positively associated with the intention of buying a new electronic product of this brand.

For many researchers [2; 8; 12; 25;28] word of mouth communication, including the online comments, is one of the most influential sources of market information for consumers, since it gives the individual an indirect experience of the product or service through the opinion of friends, relatives or acquaintances, not being limited by money or any other restriction as social characteristics and physical limitations or time [27; 45; 46]. Thus, considering that, in general, online consumers reviews influence both the intention of buying a product and its determinants; it is believed that there is a present moderating effect, meaning that, this variable will change the relationship between the two interrelated variables (intent purchase and its determinants) [47].

Thus, it is assumed **(H6)** that the online comments moderate the relationship between the attitude toward the brand, brand trust, perceived behavioral control, subjective norm and the intention of buying a new electronic product.

Research Method

The present study is based on the application and test of a hypothetical deductive model. So, it may be characterized as a quantitative, descriptive and causal study. As a research strategy, we used the

experimental method which "consists essentially of submitting the objects of study to the influence of certain variables in controlled and known conditions, by the investigator, in order to observe the results that the variable produces on the object" [48]. This technique may be characterized as the laboratory, considering that the participants were "removed from their natural environment, or at least the environment that would occur, influencing the variable that someone wants to manipulate", in which artificial conditions were created in order to simulate the natural conditions [49].

Considering the purpose of the study, the most appropriate design was a *study pre-test control group pre-test/post-test*, and the construct purchase intent was the only variable measured before and after treatment (presentation of online comments). It was used the *between-subject's* procedure in which different individuals are exposed to different scenarios (positive and negative online comments, and no comments).

It is noteworthy that, when performing an experiment, the researcher has two objectives: (1) ensure the accuracy of the experiment; and (2) make the generalization of cause and effect relationship found in the experiment [50]. Therefore, it is noteworthy that we used various strategies in order to reduce or exclude the effects of variables that affect the internal validity (history, communication between the control and experimental groups and mortality) and external (reactive effect in the test or interactive effect in the test and the selection and experimental stimulation) of this study.

One of the strategies adopted to reduce the effect of mortality during the research, for example, was sweepstakes non-monetary prizes. This strategy can be used to increase response rate in the polls [50]. Furthermore, following the suggestion of Wilson, Aronson and Carl smith, to increase external validity, we sought to submit the research participants to a situation closer to the "real sense" through product selection and construction of search scenarios [51].

The research scenario involved the construction of a virtual store site, which were made available to participants with technical information based on real products, which were previously evaluated by three professionals from the information technology area. The electronic product selected to be evaluated by the participants was the smartphone, given that it arouses most interest among the population [52; 53] and it is a category known to have multiple releases of new models for a short period, a fact that, consequently, increases the product options available and can negatively affect the selection process.

Brands with higher market share in Brazil were selected, according to analyst firm Gartner [54] and, with the exception of the operating system and processor (which differs according to manufacturer brand), all technical characteristics presented were the same for all the participants, regardless of brand selected. Besides technical product information, the site also developed and made available the online comments-positive, negative or none. Based on interviews with undergraduate and graduate students of a Federal University, and the others [4; 24], it was determined that 6 opinions of about 3 to 4 lines (about 30 to 65 words) was an adequate number to be used in this study. Such comments were previously selected on websites specialized in technology and web shops (e-commerce).

Scope of the Study

The population of this research consists of undergraduate and graduate students of colleges and universities in the city of Salvador, in Northeast of Brazil, that use the Internet for shopping online. The choice of these individuals was based on data from the Survey on the Use of Information and Communication Technologies in Brazil, which states that the majority of individuals searching for information online is in the college level (87%). So it is believed that the selected population corresponds to the real universe of online consumers in Brazil.

In addition, Peterson states that this type of sample can provide increased internal validity in experimental research [55], and in accordance with Kodjamanis and Angelopoulos another aspect that defines the

college students as an ideal sample population is the variety of opinions due to factors such as culture and ethnicity, the faculty and the interests of such population constantly exposed to the Internet [56].

Being infeasible to apply the experiment with the entire population, we selected a non-probabilistic sample by convenience. The sample is non-probabilistic due to the lack of data on the entire population, and the convenience to collect responses from individuals who fit the desired profile. We obtained 690 valid questionnaires. It is noteworthy that 38.1% of the participants (263 cases) were not considered, because of invalid responses. We opted for the exclusion of observations with missing values to preserve the degree of sample variability and because the sample size required had already been achieved.

The size of the sample obtained is compatible with the sample mean observed in other studies in the explanatory nature marketing area [57; 58] and is also considered suitable for the use of multivariate analysis [59], including the Structural Equation Modeling technique [60]. It is highlighted that experimental researches have used samples of university students and non-probability sampling technique by judgment [11; 58].

The statistical validation of the sample that comprises the experimental groups was calculated. Note that in this analysis 263 questionnaires were excluded for the control group, only used to check for changes between the measurements of purchase intent (before and after treatment). For the analysis of the statistical power we used G*Power software that was developed as a power analysis program, commonly used for the statistical tests in social and behavioral research [61]. Recent researches emphasize the importance about statistical power in sampling [62]. Multi group analysis models of intent were created to purchase an electronic product with moderation of the positive online comments (Model A) and negative online comments (Model B).

Despite the creation of two samples separated by the dichotomous variable "online comments", the model fitting quality

indices were performed in the whole sample, as well as the calculation of the statistical power of the sample. Both models are trained for 28 manifest variables. The samples for Model A and Model B consist of 205 cases and 247 cases, respectively. A total sample of 452 cases was achieved.

A priori the test got an F ratio of 1.52, the required sample of 253 to obtain a statistical power of 0.95, with average effect of 0.15. The post-hoc analysis shows that the sample obtained presents 0.99 statistical power. It was evident that the experimental sample was also suitable to test a structural model with 28 predictors. Thus, the sample obtained in the research has statistical power to detect the existence of an alleged relationship between latent variables when it actually exists; therefore, the results showed values above 95% statistical power and size of the average effect of 0.15, as recommended by Hair et al. [59] and average effect of 0.15 agreed by Cohen [63].

Operationalization of the Main Variables

For the measurement of the variables we decided to use 7-point scale ranging from semantic differential of 7 points. For each construct of the model, some specific semantic labels adopted in scales were used as follows:

- Purchase intent (PI): the scale “purchase intention” [64]
- Attitude to brand (ATB): the scale “attitude toward the product/brand” [64]
- Subjective standard norm (SN) [41]
- Subjective norm/online consumer’s reviews (OCR): the scale “source to influence [64]
- Perceived behavioral control (PBC) [40; 41]
- Brand trust (BT): the scale “trust in brand” [64]

It is emphasized that, given that most of the items were in English, it was necessary to reverse translation [50], in addition to the fitness for purpose of the study [31].

Instruments and Data Collection

For the survey of primary data we used structured questionnaires and not disguised, with closed questions, whose intention was

to allow the measurement of the constructs that make up the research model. According to the study design, two instruments were developed in the Survey Monkey website, which participants had access randomly, by sending a single link by email and social networking sites.

The questionnaires were divided into the following blocks: initial instructions; situation (simulation of an episode that required to the participants a search for information on the Internet); search on the Internet (virtual store site); evaluation of constructs purchase intention, perceived behavioral control, subjective norm, attitude toward the brand and brand trust; the evaluation of customers (online consumers reviews); evaluation of subjective norm constructs/ online consumers reviews and purchase intent; and the profile of respondents. A pre-test was applied in January 2015 with 35 students who were not included in the research sample.

Data Analysis

Data were analyzed with the support of statistical package SPSS (Statistical Package for Social Sciences), version 22.0 and AMOS® Graphics, version 21. Firstly, the database preparation was performed followed by the descriptive analysis of the sample. Then statistical techniques were performed: factorial and internal reliability for the validation of scales, Student's t Test for paired samples to find changes between the measurements of the construct purchase intent and structural equation modeling (SEM) to assess the hypotheses, following the recommendations of Hair et al. [59] and Maroco [60].

The strategy analysis used was the two-step, which is the divided SEM in two stages: a confirmatory factor analysis (CFA), which presents the measurement model and results in the factor scores and the latent endogenous variables, correlations between constructs, adjustment and validation tests; and the structural equation modeling, which shows the structural model and its results, regarding evaluation of causal relationships, explained variance rates, confirmation of hypotheses, adjustment and validation tests.

Furthermore, the multi group SEM was performed by dividing the experimental

research sample according to online comments, in order to identify similarities and differences between structural parameters that indicate different relationships between groups [59].

Discussion and Analysis of Results

Initially, the characterization of the sample will be displayed. Next we will present the evaluation of the scales, the Student's t Test for paired samples and the results of the measurement model and the structural model, with the evaluation of the research hypotheses.

Characterization of the Sample and Consumer Profile

The experimental method requires the minimization of the influence of extraneous variables, in order to the profile of all groups - control and experimental - be closed. Besides seeking this similarity of groups through the selection and composition of the sample, the variables related to the profile of the respondents were analyzed, as has been done in other studies of experimental nature [57].

From the results on the profile of the control and experimental groups it was possible to balance the composition of the sample in relation to sex, and in all the groups a little more than half of the respondents were female. With respect to age, it was found that all groups showed strong concentration of participants aged up to 24 years, followed by the age group of 25 to 29 years and a few cases of participants with more than 40 years in experimental groups. Considering marital status, in all samples it is clear that the vast majority were single, while the monthly family income in the experimental groups concentrated in the first four monthly salary ranges proposed (up to USD 2136.76) and in control groups there was a higher incidence in the range of USD 641.03 to USD 1282.06. Finally, the brands most cited in all groups were Apple, Samsung and LG; on the other hand, Electronic and Sony got the smallest score of mentions.

To confirm that sex, age, marital status and family income is equally distributed among the groups surveyed, the chi-square independence test was carried out, in which, considering $p > 0.05$, the null hypothesis (H₀)

independence between the variables was confirmed. After analysis, it was concluded that individuals belonging to groups have similar characteristics of sex, age, marital status and family income. In this sense, it can be considered that the samples of the control and experimental groups showed equivalence.

Rating Scales

Before processing the SEM, the statistical techniques of factor analysis and reliability analysis using Cronbach's Alpha were performed [59]. In between blocks factor analysis the commonality indices and rotated factorial matrix were examined. At this stage, in order to obtain acceptable data (communality > 0.50 and factor loadings > 0.70), the exclusion of three variables was necessary.

Before testing the operationalization of these constructs and their indicators in structural modeling tests, the intra block factor analysis was performed in order to verify the one-dimensionality of the set of variables within each factor. In this step, the results confirmed the one-dimensionality of all factors tested, given that (A) the factor loadings of the indicators in the corresponding factors were large and significant (above 0.90); (B) the commonality indices were higher than 0.80; (C) the global measure of sampling adequacy (KMO) was above 0.50; (D) the global measure of Bartlett Sphericity test was significant, indicating that there is sufficient correlation between the variables (sig < 0.05 .); and (E) the variance explained was above recommended in the literature ($> 60\%$).

Finally, we calculated the Cronbach Alpha index for each construct, in order to check the internal consistency between the variables. It is noteworthy that all constructs showed values well above the tolerable minimum (0.70). The reliability of the questionnaire showed index 0.930, indicating a satisfactory result.

Student's t Test for Paired Samples

In this study, the control group was only used to verify the influence of extraneous variables in the experiment. Therefore, we performed the Student's t Test, through which the averages were compared. Table 1 shows the results.

Table 1: Test of paired samples (purchase intention – PI versus online consumer’s reviews)- Students of Institutes of Higher Education – Salvador/BA, Brazil, Nov. 2014/Jan.2015.

Online consumer's reviews	N	PI 1	PI 2	Paired Difference					T test	df	Sig.
				Mean	Standard Deviation (sd)	Paired	Confidence Interval (95%)				
							Less	High			
Positive	205	4.82 (sd=1.61)	5.15 (sd=1.51)	-0.3342	0.9463	0.0661	-0.4645	-0.2038	-5.05	204	0.000
Negative	247	5.07 (sd=1.57)	4.75 (sd=1.75)	0.3266	1.2860	0.0818	0.1654	0.4878	3.99	246	0.000
Absent	238	4.95 (sd=1.53)	5.06 (sd=1.58)	-0.1149	0.7872	0.0510	-0.2154	-0.0143	-2.25	237	0.025

Source: authors.

According to Table 1, bilateral probability for both groups that read online comments was very low ($p < 0.001$), that is, there is little likelihood that the Student's t values may have occurred by chance. In this case, the null hypothesis (equality groups) is rejected suggesting that exposure to online consumer's reviews caused a significant impact on the purchase intention.

Nevertheless, it is noteworthy that the control group, although it has no contact with the treatment study (online consumer's reviews) presented the highest average in the second measuring purchase intent. From the data it was also found that there is significant difference between the groups ($p = 0.025$), while it was expected to confirm the null hypothesis (equal groups). This result suggests that it was not possible to ensure that the difference observed in the experimental groups occurred only because the reading of the online consumer's reviews.

Measurement Model of Purchase Intent of an Electronic Product

To meet the objectives of the study, after processing and database preparation, it was decided to carry out structural equation modeling (SEM) in two stages: Confirmatory Factor Analysis and SEM, followed by Multigroup SEM.

Conditions for Use of Sem in Two Steps

As in most multivariate analysis, the use of structural equation technique requires validation of some assumptions without which the results of the tested model can be compromised. In this sense, the assumptions evaluated for the use of SEM by covariance were based on the recommendations of Hair Jr. et al. [59], Kline [65] and Maroco [60].

The first assumptions evaluated refer to linearity of the model, the non-zero sample covariance, the existence of three indicators

for each construct, strong scale (metric scale of 5 points or more) and no outliers. Another assumption concerns the absence of multicollinearity. The more robust analysis method is by checking the common method variance (CMV) conducted during the CFA in accordance with the statistical procedures suggested by Podsakoff et al. [66]. With high influence of CMV, possible changes in the model are considered. A last assumption is related to multivariate normality of manifest variables.

The normal estimation method consisted of the analysis of the asymmetry (sk) and kurtosis (ku). Maroco defines sk reference values < 3 and $ku < 10$ [60]. However, the Teo specifications were considered in this study: acceptable ku values < 3 [67]. It was found that no variable showed violations regarding Normal distribution.

Determinants of Intention to Purchase an Electronic Product

The model has been inserted into the AMOS Graphics 21 and tested by maximum likelihood method, considering the construct purchase intention which was measured after reading the online comments. The commonalities and the factor loadings were evaluated, as suggested by Kline [65] and Maroco [60]. Similarly, the change ratios and influences of possible biases were analyzed.

At first, the quality indicators assessed adjustment were $\chi^2 (106) = 1363.149$; $\chi^2/df = 3,238$; CFI (Comparative Fit Index) = 0.917; TLI (Tucker Lewis Index) = 0.909; NFI (Normed Fit Index) = 0.885, MECVI (Modified Expected Cross Validation Indices) = 4.077 and RMSEA (Root Mean Square Error of Approximation) = 0.076; $p_{close} = 0.000$. The χ^2/df rate was satisfactory, as well as the CFI index, TLI and NFI getting near 0.9 each. The RMSEA also showed good

fit. The MECVI obtained indicated high complexity of the model. Regarding the factor loadings and commonalities, a variable OCR2 (Online consumers review – variable 2) presented commonality 0.37, which is below the desired minimum (0.5). The same variable obtained factor loadings of 0.61, with the smallest factor loading of variables in the model. The PBC5 (Perceived behavioral control – variable 5) also showed tolerable levels. For the modification indices the limit of 30 was defined as an acceptable minimum of similarities between errors.

High modification rates were found among the errors of Purchase intent variables PI6 and PI7 (M.I. = 143,937), being M.I (Modification Indices), the mistakes of the variables PI1 and PI2 (M.I. = 96,754). A detailed examination was performed to detect a possible influence of the common variance method (CMV) present in the construct. The delta values for the subtraction of the standardized regression weights were high for variables construct purchase intent, indicating influence of CMV. However, at first the errors of the aforementioned variables were correlated and PBC5 variable was excluded from the model.

In a second step, the quality indicators of assessed adjustment were χ^2 (105) = 1057.789; χ^2 /df = 2,712; CFI = 0.940; TLI = 0.933; NFI = 0.909; MECVI = 3.289 and RMSEA = 0.066; pclose = 0.000. Note that the chi-square index considerably improved, as well as the RMSEA. The obtained MECVI was lower than the previous one, indicating better fit between complexity and completeness. Although the pattern has adequate quality adjustment indices, the commonality of variable OCR2 also presented value lower than expected and, therefore, it was decided to remove the template variable and check the impact on other variables.

Regarding the modification indices, none exceeded the limit arbitrated. After the withdrawal of the variable, the indices obtained in the third round were χ^2 (102) = 1014.928; χ^2 /df = 2,804; CFI = 0.941; TLI = 0.933; NFI = 0.911, MECVI = 3.161 and RMSEA = 0.068; pclose= 0.000. Some indexes showed slight modifications, including MECVI that got another crash. With the identification of high deltas between the variables of the PI construct, it can be inferred that the PI6 and PI7 variables presented high correlation and could be sharing the same portion of variance, inflating the commonality indices and making the model unnecessarily more complex. Thus, an alternative model without the variable PI7, that presents commonality lower than PI6, was tested and verified by comparing with the adjustment model already found.

The adjustment quality indices obtained found slight modifications, maintaining the optimal adjustment factor model; in addition, the factor loadings and commonalities of manifest variables had a significant improvement. The result of MECVI obtained also showed improvement. Thus, it was noticeable that the model without the variable PI7 was more trusted and obeyed the required assumptions, besides having great fit. The adjustment of quality indicators found for the consolidated model were χ^2 (98) = 973.795; χ^2 /df = 2,898; CFI = 0.939; TLI = 0.931; NFI = 0.910; MECVI = 3.032 and RMSEA = 0.070; pclose = 0.000.

In Table 2 the factor scores of the variables are presented as well as standard error and critical ratio of the estimates. The factor loadings are presented in standardized version for easier viewing.

Table 2: Estimates of measurement model

			Standardized	Estimate	S.E.	C.R.	P
ATB1	<---	Attitude toward the brand	0.84	1.000			
ATB2	<---	Attitude toward the brand	0.89	1.073	0.045	23.677	***
ATB3	<---	Attitude toward the brand	0.90	1.129	0.047	23.818	***
ATB4	<---	Attitude toward the brand	0.92	1.077	0.043	24.790	***
ATB5	<---	Attitude toward the brand	0.75	0.878	0.050	17.585	***
ATB6	<---	Attitude toward the brand	0.88	1.059	0.046	23.066	***
BT7	<---	Brand trust	0.79	1.000			
BT6	<---	Brand trust	0.93	1.056	0.036	29.573	***

			Standardized	Estimate	S.E.	C.R.	P
BT5	<---	Brand trust	0.95	1.086	0.034	31.708	***
BT4	<---	Brand trust	0.92	1.072	0.037	29.010	***
BT3	<---	Brand trust	0.80	1.113	0.052	21.579	***
BT2	<---	Brand trust	0.72	0.982	0.054	18.341	***
BT1	<---	Brand trust	0.70	0.982	0.058	17.035	***
SN3	<---	Subjective norm	0.88	1.000			
SN2	<---	Subjective norm	0.95	1.082	0.039	27.612	***
SN1	<---	Subjective norm	0.84	0.961	0.042	22.802	***
OCR5	<---	Online consumer's reviews	0.87	1.000			
OCR4	<---	Online consumer's reviews	0.93	1.174	0.047	24.892	***
OCR1	<---	Online consumer's reviews	0.87	1.032	0.045	22.847	***
PBC4	<---	Perceived behavioral control	0.82	1.000			
PBC3	<---	Perceived behavioral control	0.89	0.993	0.045	21.892	***
PBC2	<---	Perceived behavioral control	0.93	1.073	0.046	23.274	***
PBC1	<---	Perceived behavioral control	0.90	1.071	0.048	22.231	***
PI1	<---	Purchase intent	0.73	1.000			
PI2	<---	Purchase intent	0.83	1.097	0.051	21.663	***
PI3	<---	Purchase intent	0.86	1.204	0.073	16.481	***
PI4	<---	Purchase intent	0.77	0.953	0.064	14.855	***
PI6	<---	Purchase intent	0.78	1.191	0.079	15.046	***

Source: Authors.

Thus, the final factorial design was formed by 28 manifest variables, distributed in six constructs (Attitude toward the brand, Brand trust, Subjective norm, online consumer's reviews, Perceived behavioral control, Purchase intent). In this case, the model had to $p = 28$, $p =$ number of manifest variables, we have: $p(p + 1) / 2 \rightarrow 28(28 + 1) / 2 = 406$ (number of distinct sample moments or different sampling times). With the estimated parameters 98, the degrees of freedom of the model are 308.

With the adjustment of the full model the indices Composite Reliability (CR) and Average Variance Extracted (AVE) were calculated. Factorial validity, verified by the factor loadings, was achieved because all manifest variables presented high factor

loadings, as suggests Maroco (2014). To meet the convergent validity, it was necessary to obtain CR up 0.7 and AVE above 0.5 (Hair Jr. et al. 2009). Therefore, the AVE can be calculated as follows: $(\sum \lambda^2) / (\sum \lambda^2) + (\sum \epsilon \lambda^2)$ which is factorial $\sum \lambda$ weight and $\sum \epsilon \lambda$ is the error associated with the weight factor. In turn the CR can be calculated as follows: $(\sum \lambda)^2 / (\sum \lambda)^2 + (\sum \epsilon \lambda)$, where $\sum \lambda$ is the factor weight and $\sum \epsilon \lambda$ is the error associated with the weight factor.

To ensure the discriminant validity, Fornell and Larcker (1981) define the dimensions of AVEs as greater than or equal to the square of the correlations between the factors. Table 3 compares the required values.

Table 3: Convergent and discriminant validity of the factorial design with comments - students of institutes of higher education – salvador / BA, brazil, in Nov. 2014 / Jan.2015.

	AVE	ATB	BT	OCR	PBC	PI	CR
Attitude toward the brand (AT)	0.749	0.749					0.947
Brand trust (BT)	0.647	0.65	0.647				0.941
Subjective norm (SN)	0.794	0.04	0.07	0.794			0.920
Subj. Norm/Online consumer's rev. (OCR)	0.793	0,00	0,00	0,00	0.793		0.920
Perceived behavior control (PBC)	0.785	0.10	0.14	0,01	0,00	0.785	0.936
Purchase intent (PI)	0.633	0.37	0.40	0,21	0,03	0.11	0.633

Source: Authors.

The results of the AVE and CR met the required minimum in all constructs. However, when comparing the AVE with the square of the correlation, it was noted that among the constructs attitude toward the brand and brand trust discriminant validity was not met. However, the method of Fornell

and Larcker for all other pairs of constructs has been met [68]. The alternative method of discriminant validity is to compare the full model with fixed correlations and the complete model with free correlations, then check the differences of the chi-square index of the degrees of freedom. Maroco details the

procedure with the following formula: $\chi^2_{df} = \chi^2_r - \chi^2_u > \chi^2_{df}$ [60]. The results for the model was $\chi^2_{df} = 1794.494 - 973.795 > 2,898$. As the value of the difference between the models is greater than the quotient of the χ^2 statistics of the degrees of freedom it was possible to say then that the correlations between the factors were significantly different from 1, which indicated service discriminant validity. With the completion of the first stage of SEM, the validation of the structural model was the next step.

Structural model of buying intention of an electronic product, the influence of online comments: multi groups analysis

The structural model was tested regarding the determinants of purchase intent under the influence of construct online consumer's reviews, assessed only by the experimental sample group. Note that when you want to understand the effect of a categorical or dichotomous variable (such as online consumer's reviews) in a continuous dependent variable (purchase intent) of a structural model, you can perform a multi group analysis [69].

Note that after the first stage of SEM a high correlation was observed between the constructs, resulting in low power purchase intent explanation. When this occurs, the researcher can follow for several ways, among which propose second order constructs, adding the first-order constructs, representing a hierarchical structure. The inclusion of second-order factors to post the data analysis is found in some studies [70; 71].

In this sense, from the analysis of the structural model process it was generated a model in which the independent variables represent the sub-constructs of the second-order construct called "motivational factors of purchase intent." This is a factor that has no observed variables and considers the correlation among the constructs, making a correction in order to improve the power model of explanation; in other words, it acted as a correction factor for the purpose of considering correlations of constructs in the calculations of the estimates, and so ensuring a more reliable adjustment model

with the reality studied. The second-order factors allow a better understanding of the theoretical relationships between variables [47]. In this sense, the authors explain that the use of second-order factors may contribute to simplify both the model as it becomes more parsimonious and for the development of the theory, since the proposition have relations supported by theoretical sense.

It is noteworthy that the original model of the TPB used as the basis of this study by Azjen highlights that the attitude constructs, subjective norm and perceived behavioral control share a correlation between them [31]. Thus, it was considered appropriate to include all of these variables in the new factor, in addition to construct brand trust, which already had a high correlation with the construct attitude toward the brand.

A direct relationship of subjective norm/online consumers reviews to the purchase intent was also added. In this sense, the idea that the second-order construct "motivational factors purchase intent" represented is that the bigger the attitude and the brand trust, the greater the perceived behavioral control over to purchase the product and the greater social influence of the group, the more influenced by motivational factors is the individual.

After the inclusion of second-order factor of the general model structures were tested. The structural model was evaluated by the maximum likelihood method, like the model of the AFC. At this stage, the adjustment of quality indicators was assessed again, as well as the commonalities and the factor loadings. Modification indices can also be changed with the inclusion of causal relationships.

To conduct the multi groups analysis two groups were created: one with positive online consumer's reviews (Model A) and another group with negative online consumer's reviews (Model B). The samples with positive online consumer's reviews and with negative online consumer's reviews were composed of 205 and 247 participants respectively. The results of the adjustment quality tests were satisfactory, with χ^2 (134)

= 1406.203; $\chi^2/df = 1,916$; CFI = 0.936; TLI = 0.934; NFI = 0.875; MECVI = 4.415 and RMSEA = 0.048; p close = 0.000. The RMSEA index was slightly below the value desired, that should be equal to or above 0.05. Chi-square statistics also showed a little below the established standards, with a view that is less than 2. However, the violation of two indexes was not great and was due to restriction of the sample. The other indices met the values stipulated by the literature and validated AFC; so models A and B were considered plausible.

In general, regarding the adequacy of the test of the difference in chi-square by the difference of degrees of freedom, it was confirmed that the differences between the model relationships were statistically significant between the two groups. It is noteworthy that such adjustment quality scores were the same for both groups. Fig. 1 and 2 show the comparison between the two models, and the first values refers to the Model A (positive online consumer's reviews) and the second to the Model B (negative online consumer's reviews).

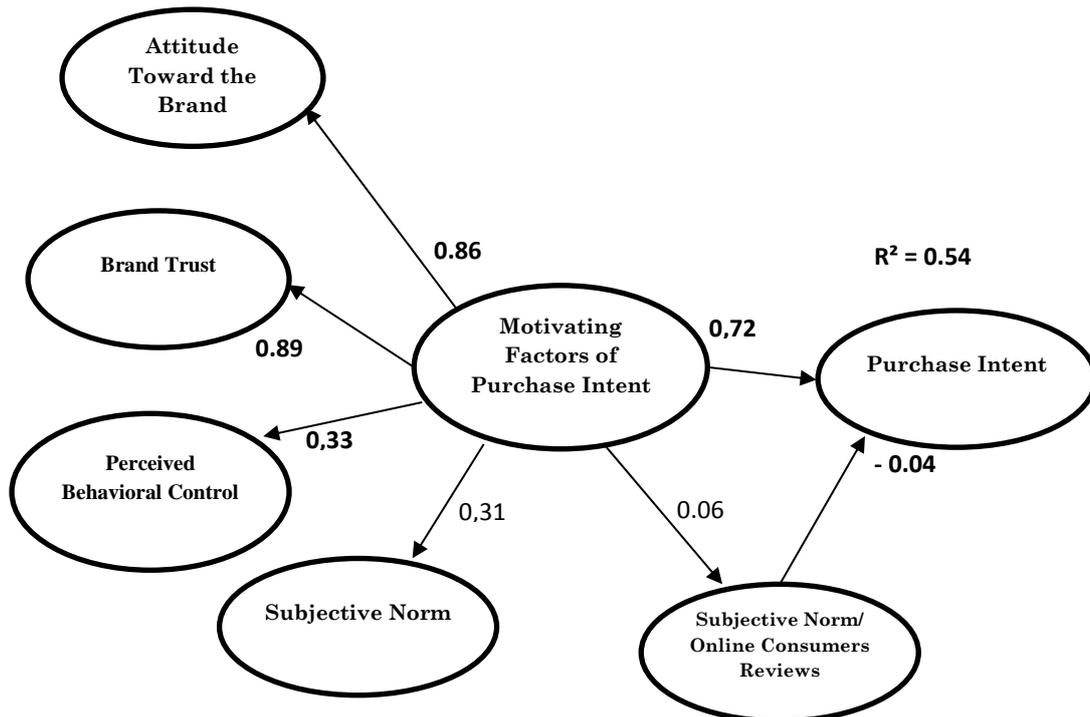


Figure 1: Purchase intent model with positive online consumer's reviews (Model A) Source: Authors.

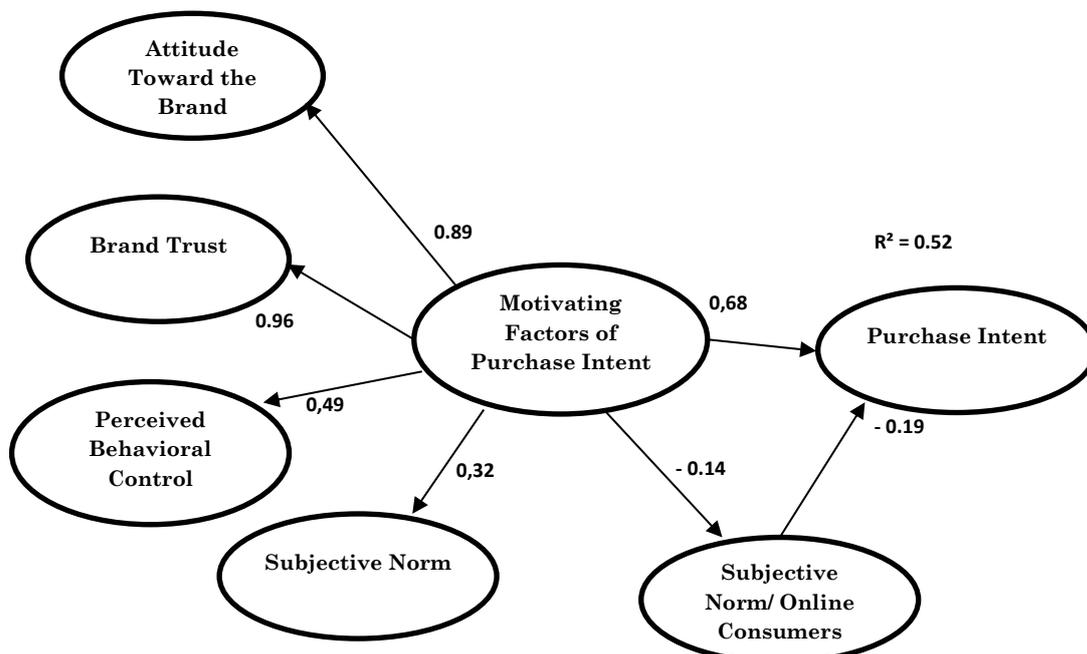


Figure 2: Purchase intent model with negative online consumer's reviews (Model B) Source: Authors.

According to the obtained results, the model A explained 54% of the variability of responses related to purchase intent, observed in 205 responses analyzed, while the model B explained 52% of variance, considering the 247 observations. All associations in both models were positive and significant, as well as all factorial weights of measurement items were high.

Discussion of Results

Based on the structural model (Fig. 1 and Fig. 2), it appears that the use of the construct subjective norm/ online consumer's reviews showed insignificant impact on purchase intent in the group with positive online consumer's reviews ($\beta = -0.04$), as did not contribute to the motivational factors purchase intent in both groups ($\beta = 0.06 / -0.14$), probably due to the balance of the assessment of the participants in relation to the comments of other users posted in the online environment. These notes apply to models A and B.

The similarities between respondents were also noted in the ranking of determinants that contributed to construct motivational factors of purchase intent; they are brand trust and the attitude toward the brand; and also with the least contributed (subjective norm). The greatest impact of the independent variables in second order factor was found in the group that had access to negative online consumer's reviews. However, in the group with positive online consumer's reviews, the construct motivational factors purchase intent showed a greater impact on purchase intent than in the group with negative online consumer's reviews (72% and 68%, respectively).

In the case of Model A, the results supported the explanation that when the subjects were exposed to positive online consumer's reviews, purchase intention depended on directly from the motivational factors of purchase intent and indirectly on the attitude toward the brand, the brand trust, the perceived behavioral control and subjective norm. It is noteworthy in this case the subjective norm related to online consumer's reviews had no effect on the formation of the second-order factor - motivating factors of purchase intent - nor on purchase intent. Thus, it is suggested

that positive consumer opinions posted online do not influence the choice of electronic product in this research represented by smartphone product.

Regarding the Model B, the results supported the explanation that when the subjects were exposed to negative online consumer's reviews, purchase intention depended on directly from the motivational factors of purchase intent and subjective norm in relation to online consumers reviews and indirectly on attitude in relation to the brand, the brand trust, the perceived behavioral control and subjective norm. It is worth mentioning that the construct perceived behavioral control had an influence on the formation of the much larger second order factor than was observed in Model A ($\beta = 0.49$ and $\beta = 0.33$, respectively), suggesting that, for the group that had access to negative online consumer's reviews, the greater the individual's ability to perform the behavior, the lower the impact of comments from other users and, consequently, the greater the intention to purchase.

Note that in this case, as was observed in Model A, subjective norm related to online consumer's reviews did not influence the formation of the second-order factor-motivating factors of purchase intent. However, unlike observed in Model A, this variable had a negative direct impact on purchase intent. Thus, it is suggested that the negative opinions of consumers negatively influence the choice of electronic product ($\beta = -0.19$), in this research represented by smartphone product. Thus, besides the motivating factors of purchase intention ($\beta = 0.68$) in Model B, the product purchase intention was also explained by the subjective norm related to online consumer's reviews ($\beta = -0.19$).

Based on these results, we can confirm the hypotheses H1, H2, H4 and H5, showing that the constructs attitude toward the brand, subjective norm, perceived behavioral control and brand trust are positively associated with intention to purchase, directly and indirectly, through the motivational factors of purchase intent, in both groups. It also confirms the H3b hypothesis, suggesting that the negative

online consumer's reviews have a strong negative relationship with the intention of buying. However, H3a hypothesis was rejected, given that the result did not indicate a strong and positive relationship of positive online consumer's reviews with the intention of buying.

The models A and B were compared in order to analyze the H6 hypothesis. Initially it was found that the explanatory power of Model B (0.54) was slightly higher than the Model A (0.52) and that the greatest impact of the independent variables in second order factor was in the group that had access to negative online consumer's reviews. The latter result suggests both the individual's ability to perform the behavior without assistance as the positive experience with the brand as critical for the negative online consumer's reviews about a product do not affect the purchase intent.

The constructs attitude toward the brand and brand trust were important in explaining factor of second order in both models. The biggest difference in the power of explanation occurred in the construct perceived behavioral control, having a greater value in the group with negative online consumer's reviews (Model B = 0.49 and Model A = 0.33). Also, considering that this construct has an indirect association with the intention of purchase, it was found that its importance in purchase intent explanation was higher for sample that had access to negative online consumer's reviews (Indirect effects: Model A = 0.24 and Model B = 0.33).

This result suggests that the greater the perception of control to perform the behavior or, in other words, the more able the individual believes that he/she is of assessing the technical characteristics and benefits of the product, the lower the impact of negative online consumer's reviews and, consequently, the greater his/her intention to purchase it.

It is noticed that in the group with positive online consumer's reviews, the construct motivational factors purchase intent showed a greater impact on purchase intent than in the group with negative online consumer's reviews (72% and 68%, respectively).

However, only in the group with negative online consumer's reviews, the subjective norm on the online consumer's reviews was significant for the explanation of purchase intent (-0.19). The negative sign indicates that the greater the importance attributed to negative online consumer's reviews, the smaller is the intention to buy the electronic product in question.

Finally, note that the models for both samples can be considered different, especially when it comes to explaining the purchase intent of an electronic product. For example, the constructs perceived behavioral control and subjective norm related to online consumer's reviews had quite different values, indicating that these variables played a crucial role in differentiating the behavior of the two samples. Thus, the hypothesis H6 is confirmed.

Final Considerations

The growing number of new electronic devices that vary little in quality and technical specifications can confuse consumers who wish to purchase a new product, and make it difficult for consumers to stay current with all the products that come to market. Uncertainty about the real benefits of purchasing a new product increases consumer risk perception, given the variety of similar options available in the market. In this context, the communication word of mouth online appears as a way to overcome the asymmetry of information describing the attributes of the product in terms of usage situations, measuring quality from the user's point of view and not from sellers who hold almost exclusively technical specifications.

In this context it is crucial for businesses the understanding of consumer behavior and the factors that influence purchase intent, so that more effective marketing strategies are developed. The Internet has made the understanding of these phenomena a major challenge, which justifies the expansion of studies on this subject [32].

It is emphasized that researchers should be aware that the present theoretical models are generic and, therefore, open to changes, adjustments and redesigns to better fit the reality studied. Thus, it is believed that

using a second order factor as previous purchase intent is a contribution of the article, given that the use of these factors improves the understanding of the relations which were hitherto not been proposed or clear in original theoretical models [47].

In this study, the second-order factor - motivating factors of purchase intent - indicates that the higher the attitude and the brand trust, the greater the perceived control over to purchase the product and the greater social influence of the group, the more influenced by motivational factors is the individual. Consequently, the greater is the intention of the individual in acquiring the product of that brand.

The personal order factors – brand trust and attitude toward the brand - presented the greatest impact on the formation of the second order factor and also construct those that, indirectly, explained most variation in purchase intent in the analyzed models. Thus, it appears that the higher the confidence in the brand and favorable attitude toward it, the greater the intention to acquire the new product. Thus, these variables were more relevant for the formation of purchase intention than the subjective norm (important people and online consumer's reviews).

The results on the constructs attitude and brand trust point to the need for companies to invest in strong, trusted brands, and cultivate long-term relationships with their customers. Thus, investments in communication are recommended, strengthening the company's concern to better meet the desires and needs of consumers, justifying thus the constant investment in product improvement.

It was found that the influence of perceived behavioral control on purchase intention was higher in the group that had access to negative online consumer's reviews. In conclusion, it is suggested that the more likely the consumer believe that he/she is able to assess the technical characteristics and benefits of the product, the lower the impact of negative information and, consequently, the greater his/her purchase intent. Some studies suggest that individuals with different levels of

specialization tend to look for different types of information [4]. The more fit the consumer feel to evaluate a particular product, the more value he/she will give to the technical information, which are usually passed on by companies or vendors. Thus, it is recommended that companies encourage consumers to seek information about the attributes and product differentials, providing tutorials or the possibility to try it, for example.

Another contribution of this study was the dismemberment of the subjective norm construct in important people and online consumer's reviews, allowing analysis of both social influences in the same sample.

The direct relationship between the subjective norm (important people) and purchase intent supports the thesis that the people important to the consumer interfere positively in his/her intention to purchase an electronic product, although other factors (attitude toward brand and brand trust) prove more important. Moreover, the direct relationship between the subjective norm on online consumer's reviews and purchase intent suggests that complaints can interfere more in the final opinion of the participants in this study than raves about the product.

On the other hand, the association between subjective norm on online consumer's reviews and purchase intent in the group who had access to positive online consumer's reviews was not confirmed, suggesting that for those consumers with high confidence in the brand, a favorable attitude toward the same, subjective norms favorable to the product and a high perceived behavioral control to acquire it, the praise and recommendations from other consumers will not interfere significantly as to modify their intention to purchase.

Finally, the study's limitations mainly involve methodological aspects such as conducting experimental method, selection of online consumer's reviews a priori, cross-section and composition of the sample. Regarding the experimental method, the specific conditions of the experiment were constructed by the authors characterized as a laboratory experiment; this study should have been conducted in a real consumer environment.

However, the experiment was conducted over the Internet, making room for influences of extraneous variables, diminishing control over the experiment and, in a way, over the internal validity of the results. Whereas the control group showed significant differences in the measurements before/after purchase intent, while not receiving treatment (access to online consumer's reviews), such a sample is believed was influenced by some strange variable "test effect", and this can be a methodological limitation. For this reason, one cannot say that the variations observed in the experimental groups regarding the purchase intent are given solely because of online consumer's reviews. However, the study highlights the adequacy of experimental design because if there was no control group, the researcher would be

hardly aware of this limitation in the process of data analysis.

From a broader perspective of academic and managerial knowledge production, it is evident the need to develop further studies on the intention to purchase and the online consumer's reviews with a perception not addressed in all existing issues in this case. Thus, it is expected that this study can encourage other researchers, in order to capture more factors of this complexity that permeates the influence of online consumer's reviews, as well as the intention to purchase new products.

Acknowledgements

The authors thank the National Counsel of Technological and Scientific Development for financial assistance.

References

- 1 Richers Raimar (1984) O enigmático mas indispensável consumidor: teoria e prática" *Revista de Administração*, 19(3):46-56.
- 2 Yayli Ali, Bayram Murat (2009) eWOM: the effects of online consumer reviews on purchasing decision of electronic goods" Retrieved 30 2011, http://www.marketing-trends-congress.com/2010_cp/Materiali/Paper/Fr/Yayli_Bayrami.pdf.
- 3 Duan Wenjing, Gu Win, Whinston Andrew B (2008) The dynamics of online word-of-mouth and product sales-An empirical investigation of the movie industry" *Journal of Retailing*, 84 (2):233-242.
- 4 Park Do-Hyung, Kim Sara (2008) The effects of consumer knowledge on message processing of electronic word-of-mouth via online consumer reviews" *Journal Electronic Commerce Research and Applications*,7(4):399-410.
- 5 Cabezudo Rebeca San José, Izquierdo Carmen Camarero, Pinto Javier Rodríguez (2013) "The persuasion context results in online opinion seeking: effects of message and source-the moderating role of network managers. *Cyber psychology, Behavior, and Social Networking*, 16(X):1-8.
- 6 Lau Geok, Theng Lee, Sook Han (1999) Consumers trust in a brand the link to brand loyalty *Journal of Market Focused Management*",4:341-370.
- 7 Gildin Suzana Z (2003) Understanding the power of word-of-mouth" *Revista de Administração Mackenzie*, 4(1):92-106.
- 8 Mowen John C, Minor Michael (1997) *Consumer behaviour*" New Jersey: Prentice-Hall.
- 9 Godes David, Mayzlin Dina (2004) Using online conversations to study word-of-mouth communication" *Marketing Science*, 23(4)5:45-560.
- 10 Lee Sang, Jun Lee Zoonky (2006) An experimental study of online complaint management in the online feedback forum" *Journal of Organizational Computing Electronic Commerce*, 13:65-85.
- 11 Almeida Tatiane Nunes Viana de Ramos, Anátalia Saraiva Martins (2012) Os impactos das reclamações on-line na lealdade dos consumidores: um estudo experimental" *Revista de Administração Contemporânea*,16(5):664-683.
- 12 Lin Su-Fan Chang, Jung-Ting (2013) The effect of electronic word-of-mouth on perceived service quality price: the moderating role of involvement, *Proceedings Book of International Conference on Business and Information*, Bali, Indonesia.
- 13 Rita Luciana Peixoto Santa, Araújo, Alcides Carlos de, Paula, Mainah Almeida de, Lima, Manuella de Oliveira, Viana Filho, José Carlos (2010) Consumo de produtos e serviços inovadores: aplicação do índice de prontidão para tecnologia, *Revista Brasileira de Inovação*, 9(1):167-196.
- 14 Zhang Jason Q, Craciun Georgiana Shin Dongwoo (2010) When does electronic word-of-mouth matter? A study of consumer product

- reviews” *Journal of Business Research*, 63:1336-1341.
- 15 Schneider Gustavo Luce, Fernando Bins (2014) Medindo a comunicação entre os consumidores: métricas em word-of-mouth” *Proceedings Book of XXXVIII Meeting of ANPAD*, Rio de Janeiro, Brazil.
 - 16 Troye Sigurd V. Xie, Chunyan (2007) The active consumer: conceptual, methodological, and managerial challenges of prosumption” Retrieved 5 2009, <http://www.nhh.no/Admin/Public/DWSDownload.aspx?File=%2FFiles%2FFiler%2Finstitut%2Ffor%2Fconferences%2Fff%2Fpapers%2Fxie.pdf>.
 - 17 Lucena Danielle Mantovani, Muller Paulo Henrique, Ribeiro Eneida Bezerra Soares, Souza, Flávio Freire, Korelo, José Carlos (2008) Processo de escolha de produtos em constante inovação: inovatividade, objetivos de consumo e percepção da inovação”. *Revista de Administração e Inovação*, 5(2):43-56.
 - 18 Dellarocas Chrysanthos (2003) The digitization of word of mouth: promise challenges of online feedback mechanisms” *Management Science*, 49(10):1407-1424.
 - 19 Hennig-thurau Thorsten, Gwinner Kevin P, Walsh Gianfranco, Gremler Dwayne D (2004) “Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the Internet?” *Journal of Interactive Marketing*, 18(1):38-52.
 - 20 Sun Tao, Youn Seounmi, Wu Guohua, Kuntaraporn Mana (2006) Online word-of-mouth (or mouse): an exploration of its antecedents and consequences, *Journal of Computer-Mediated Communication*, 11, 1104–1127.
 - 21 Jalilvand Mohammad Reza, Esfahani Sharif Shekarchizadeh, Samiei, Neda (2011) Electronic word-of-mouth: challenges and opportunities” *Procedia Computer Science*, 3.
 - 22 F/Nazcar SS (2014), “Pesquisa F/RADAR”(14a ed) Retrieved 2015, from http://www.fnazca.com.br/wp-content/uploads/2014/12/fradar-14_publica-site.pdf.
 - 23 Bambauer-sachse Silke Mangold, Sabrina (2013) Do consumers still believe what is said in online product reviews? A persuasion knowledge approach, *Journal of Retailing and Consumer Services*, 20:373-381.
 - 24 Lee, Jumin, Park, Do-Hyung, Han, Ingoo (2008) The effect of negative online consumer reviews on product attitude: an information processing view” *Electronic Commerce Research and Applications*, 7, 341–352.
 - 25 Goldenberg Jacob, Libai Barak, Muller Eitan (2001) Talk of the network: A complex systems look at the underlying process of word-of-mouth” *Marketing Letters*, 12(3):211-223.
 - 26 Ikeda Ana Akemi (1997) Estratégias de promoção: a importância da comunicação boca a boca em relação a outros instrumentos promocionais” *Proceedings Book of XX Brazilian Congress Sciences Communication of INTERCOM*, Santos, São Paulo, Brazil.
 - 27 Silverman George (2001) The secrets of word-of-mouth marketing: how to trigger exponential sales through runaway word-of-mouth, New York: Amacom.
 - 28 Tubenchlak Daniel Buarque (2013) Fatores motivacionais da comunicação boca-a-boca eletrônica positiva entre consumidores no Facebook” (Masters dissertation). Getulio Vargas Foundation, Rio de Janeiro, Brazil.
 - 29 Tucker Tiana (2011) Online Word of Mouth: Characteristics of Yelp.com Reviews, *The Elon Journal of Undergraduate Research in Communications*, 2(1):37-42.
 - 30 Marketing Science Institute (MSI) (2014) Research Priorities 2014-2016” Retrieved 25 August 2014, from <http://www.msi.org/research/2014-2016-research-priorities/>.
 - 31 Ajzen Icek (1991) The theory of planned behavior, *Organizational behavior human decision processes* 50:179-211.
 - 32 Zendejdel Marzieh Paim, Laily Hj (2015) Investigating the perceived innovation attributes, toward online shopping in Malaysia, *Asian Journal of Social Sciences & Humanities*, 4(2):15-23.
 - 33 Fishbein Martin, Ajzen Icek (1975) Belief, attitude, intention, behavior: an introduction to theory and research” Reading, Massachusetts: Addison-Wesley.
 - 34 Cheng Simone, Lam Terry, Hsu Cathy HC (2006) Negative word-of-mouth communication intention: an application of the theory of planned behavior” *Journal of Hospitality & Tourism Research*, 30(1):95-116.
 - 35 Lacerda, Tales Sarmiento (2007) Teorias da ação eo comportamento passado: um estudo do consumidor no comércio eletrônico (Master Dissertation) Federal University of Minas Gerais, Belo Horizonte, Brazil.
 - 36 Goecking Otto Herman Pedreira (2006) Comparação de teorias da ação para explicar intenções comportamentais e comportamentos reais correspondentes (Masters Dissertation). Federal University of Minas Gerais, Belo Horizonte, Brazil.

- 37 Hoppe Alexia (2010) Comportamento do consumidor de produtos orgânicos em Porto Alegre em dois canais de distribuição” (Masters Dissertation). University of Vale do Rio dos Sinos, São Leopoldo, Brazil.
- 38 Silva Lúcia Aparecida da (2009) Atitude do consumidor em relação às marcas próprias de supermercados: um estudo exploratório” (Masters Dissertation) Universidade of São Paulo, Ribeirão Preto, Brazil.
- 39 Souza, Rônei Rocha Barreto de Souza (2009), “Intenção de escolha de ensino superior privado à luz da teoria do comportamento planejado” (Masters Dissertation). Universidade of Paraíba, João Pessoa, Brazil.
- 40 Taylor Shirley, Todd Peter A (1995) Understanding information technology usage: a test of competing models” *Information Systems Research*, 6(4):144-176.
- 41 Taylor Shirley Todd, Peter A (1995) Decomposition and crossover effects in the theory of planned behavior: a study of consumer adoption intentions” *International Journal of Research in Marketing*, 12, 137-155.
- 42 Terres, Melina da Silva, Koetz, Clara Isabel, Santos, Cristiane Pizzutti dos, and Caten, Carla Schwengberten (2010) O papel da confiança na marca na intenção de adoção de novas tecnologias” *Revista de Administração e Inovação*, 7(4):162-185.
- 43 Heitmann M, Lehmann DR, Herrmann A (2007) Choice goal attainment decision consumption satisfaction” *Journal of Marketing Research*, 44(2):234-250.
- 44 Lobb AE, Mazzocchi M, Traill WB (2007) Modelling risk perception and trust in food safety information within the theory of planned behavior. *Food Quality and Preference*, 18:384-395.
- 45 Rosen Emanuel (2000) *The Anatomy of buzz: how to create word-of-mouth marketing*, New York: Doubleday.
- 46 Kangogo Everlyne J, Musiega, Manyasi J (2013) Effect of customer satisfaction on performance of the hotel industry in the western tourism circuit of Kenya, *European Journal of Business Management*, 5(14):87-99.
- 47 Hair Jr, Joseph, Gabriel, Marcelo LDS, Patel, Vijay K (2014), “Modelagem de equações estruturais baseada em covariância (CB-SEM) com o Amos: orientações sobre a sua aplicação como uma ferramenta de pesquisa de marketing” *Revista Brasileira de Marketing*, 13(2):44-55.
- 48 Gil Antonio Carlos (1999) *Métodos e técnicas de pesquisa social*” São Paulo: Atlas.
- 49 Moreira Daniel Augusto (2002) *O método fenomenológico na pesquisa*, São Paulo: Thomson Pioneira.
- 50 Malhotra NK (2012) *Pesquisa de marketing: uma orientação aplicada*” Porto Alegre: Bookman.
- 51 Wilson Timothy D, Aronson Elliot, Carlsmith Kevin (2010) The art of laboratory experiment” In: Fiske, Susan T, Gilbert, Daniel T., and Lindzey, Gardner *Handbook of Social Psychology: volume one* New Jersey: Wiley, 49-79.
- 52 ABINEE-Brazilian Association of Electrical and Electronics Industry (2015) “Desempenho setorial: dados atualizados em março de 2015” Retrieved 7 July 2015, from <http://www.abinee.org.br/abinee/decon/decon15.htm>.
- 53 International Data Corporation (IDC) (2013) *Estudo da IDC mostra recorde nas vendas de smartphones no terceiro trimestre de 2013*” IDC – Release Retrieved 10 January 2014, from <http://br.idclatin.com/releases/news.aspx?id=1547>.
- 54 Gripa Marcelo (2014) *Samsung detém mais da metade do mercado de smartphones no Brasil*” *Olhar Digital Pro* Retrieved 19 April 2014, from <http://olhardigital.uol.com.br/pro/noticia/samsung-detem-mais-da-metade-do-mercado-de-smartphones-no-brasil/40282>.
- 55 Peterson, Robert (2001) On the use of college students in social science and research: insights from a second-order meta-analysis, *Journal of Consumer Research*, 28 (December), 450-461.
- 56 Kodjamanis Antonis Angelopoulos, Spyros (2013) Consumer perception and attitude towards advertising on social networking sites: the case of Facebook” *Proceedings Book of II International Conference on Communication, Media, Technology and Design*, Famagusta, Cyprus.
- 57 Lucian, Rafael (2008) *Sobrecarga de informações e o processo de decisão de compra: um experimento no varejo eletrônico*” (Masters Dissertation). Federal University of Pernambuco, Recife, Brazil.
- 58 Gonçalves Dilney Albornoz (2005) *A influência dos pacotes de preço na decisão de consumo de serviços* (Masters Dissertation). Federal University of Rio Grande do Sul, Porto Alegre, Brazil.
- 59 Hair Jr, Joseph F, Black, William C, Babin, Barry J, Anderson, Rolph E, Tantham, Ronald L (2009) *Análise multivariada de dados*. Porto Alegre: Bookman.

- 60 Maroco João (2014) *Análise de equações estruturais: fundamentos teóricos, software e aplicações*. Però Pinheiro: Report Number.
- 61 Faul Franz, Erdfelder Edgar, Lang Albert-Georg, Buchner Axel (2007) "G Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences" *Behavior Research Methods*, 39(2):175-191.
- 62 Pereira F, Ramos A, Gouvêa M, Costa M (2015) Satisfaction and continuous use intention of e-learning service in Brazilian public organizations *Computers in Human Behavior*, 46:139-148.
- 63 Cohen Jacob (1992) "A power prime" *Psychological Bulletin*, 112(1):155-159.
- 64 Bruner Gordon C, Hensel Paul J, James Karen E (2001) *Marketing scales handbook: a compilation of multi-item measures for consumer behavior advertising* v IV Thompson.
- 65 Kline, Rex B (2011) *Principles practice of structural equation modeling* New York: The Guilford Press.
- 66 Podsakoff Philip M, Mackenzie Scott B, Lee Jeong-Yeon, Podsakoff Nathan P (2003) Common method biases in behavioral research: a critical review of the literature and recommended remedies" *Journal of Applied Psychology*, 88(5):879-903.
- 67 Teo Timothy (2010) Using structural equation modelling (SEM) in educational technology research: Issues and guidelines" *British Journal of Educational Technology*, 41(6).
- 68 Fornell C, Larcker DF (1981) Evaluating SEM with unobserved variables measurement error. *Journal of Marketing Research*, 18:39-50.
- 69 Vieira Valter Afonso (2009) *Moderação, mediação, moderadora-mediadora e efeitos indiretos em modelagem de equações estruturais: uma aplicação no modelo de desconfirmação de expectativas*" *R Adm*, 44(1):17-33.
- 70 Alves Bianca Bianchi (2014) *O comportamento de viagens de acesso a aeroportos considerando a confiabilidade do tempo de viagem* (Doctoral Thesis). University of São Paulo, São Paulo, Brazil.
- 71 Santos Wilton Silva dos Laros, Jacob Arie (2014) *Revisão de uma escala para avaliar atitudes de estudantes de medicina*" *Avaliação Psicológica*, 13(3):437-445.