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Aspects Related to Consumer Behavior in the Context of Online Retailing

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Abstract

The fast growth of ecommerce in Brazil has motivated this study, which aims to explore a parsimonious model that relates factors preceding the intention of buying in an online store and test its stability in view of the effect of variables of the consumer profile in the virtual environment. With this purpose, the main theoretical reference was the model of proposed by Overby and Lee (2006).

The universe of interest consisted of people living in Brazil who had already purchased online. A convenience sample was conducted using an electronic questionnaire. The sample included 748 participants. The Structural Equation Modeling technique (SEM) was applied to identify and test associations between the constructs underlying the model of Overby and Lee (2006).

Among the main results, it was found that the intention of buying through a particular website is strongly correlated with preference and that this preference is only moderately explained by the utilitarian and hedonic values associated to buying by the website.

Peculiarities in this model emerged in the approach of potentially moderating variables for which differences and/or similarities were observed in relation to the total sample in the associations between the hedonic value versus preference, utilitarian value versus preference

and preference versus purchase intention. The results found may generate benefits in the management of online retailing focused on the needs of specific segments resulting from the partition of the market based on the categories of variables moderating the behavior in the virtual environment.

1. Introduction

Online retail has grown at a fast pace in Brazil and abroad over the past decade. Specifically for Brazil, data from the report of the Brazilian Internet Steering Committee indicate that 45% of the Brazilian population aged above 10 years old had already accessed the Internet in 2009 (CGI.br, 2010, p. 241) and that, among those who have accessed the Internet, 19% had already purchased from an online store, that is, they had already purchased over the Internet (CGI.br, 2010, p. 299). This leads to a universe of approximately 14 million people who have already purchased products and/or services over the Internet in Brazil.

This upward trend of e-commerce reflects its growing economic importance, attracting the attention from companies and management studies.

The peculiarities of the virtual business environment in contrast to the traditional retail channel justify the importance of knowing more deeply the mechanisms that drive the consumer behavior in the online channel.

Several academic studies investigate the profiles, preferences and the consumer behavior online. In terms of behavior, a factor that has been studied in depth is the "purchase intention" and its background.

Overby and Lee (2006) proposed a model that uses dimensions of customer perceived values (utilitarian and hedonic) in the online retail environment to explain the formation of preference for purchases through a particular website, and in this model, preference is placed as an antecedent to the purchase intention through a particular website or online store. These authors validated this model based on empirical study, gaining significance

in the relations proposed. In addition, the authors tested the moderating effect of the variable frequency of purchase in relation to the influence of hedonic and utilitarian values in the formation of preference for buying from a particular online store. It was verified that for the most frequent buyers the utilitarian values have greater influence on the formation of preference than to buyers who buy less frequently. With respect to the influence of hedonic values in online shopping in the formation of preferences, they found significance when they considered the least frequent buyers, but no significance when they considered the most frequent buyers.

In addition to the frequency of purchase, the authors suggested that future studies should also consider other moderating variables such as: type of product, gender, situational context, culture and purpose of the website.

This previous study in an international (American) context and the expressiveness of online shopping in Brazil motivated the process of choosing a model that relates the factors associated with the intention to purchase online and that adds verification of the moderating effects of the characteristics of Brazilian consumers on the associations inherent in the model.

The main question of this study can be stated as follows:

- how the relationship between the future purchase intention in a particular online store versus the values and preference for an online store could be moderated by variables of the consumer profile?

This study aims to choose a parsimonious model that relates factors preceding the intention of buying in an online store and test also its stability in view of the effect of variables of the consumer profile in the virtual environment.

From the management standpoint, the advent of the online retail channel is important for its potential to deeply change the operation and management of traditional marketing

channels (examples for retail: retail with store and retail without store – it includes telemarketing, direct sales and direct mail) (STREHLAU; TELLES, 2006, p. 114) and is also important in the management and strategic business planning in the digital age (ALBERTIN, 2010).

Obtaining a model that allows the identification of aspects that could lead consumers to purchase online and the evaluation of the interference of the consumer characteristics in this model, which is the main purpose of this paper, may guide the online business manager to establish different strategies according to the market profile, thus increasing the probability of attracting specific audiences to the virtual environment.

2. Theoretical Framework

In order to achieving the objective of this study, a few models regarding the consumer behavior in the virtual environment will be presented, with special mention to the model of Overby and Lee (2006), chosen for this study. We conclude this section with the presentation of some variables with potential to moderate the relationships between factors and the intention to purchase online.

2.1. Models of consumer behavior in online shopping

Theories related to the consumer behavior have been used in studies that seek to explain and relate attitudes, intentions and actions of consumers in general. The Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) were proposed and developed in the studies of Ajzen and Fishbein (AJZEN; FISHBEIN, 1974; FISHBEIN; AJZEN, 1974) and belong to a research approach derived from cognitive psychology (BRAY, 2008). According to Bray (2008), in the cognitive approach behavior is attributed to intrapersonal cognition and also to social stimuli and environmental influences, which would be input information that helps individuals make decisions internally.

The Theory of Reasoned Action and the Theory of Planned Behavior influenced the creation of models that are intended to study the context of the adoption and use of technology by individuals. The Technology Acceptance Model (TAM) (DAVIS, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (VENKATESH et al., 2003) are examples of these models.

The Technology Acceptance Model (TAM) was originally developed to model the adoption of technology by business users, indicating that, despite being widely used, it is not suitable for studying individual consumer behavior on the Internet. However, this model has been reviewed and influenced the development of new models, such as the UTAUT. Positive aspects related to TAM are the characteristics of measuring utilitarian aspects related to the adoption of technology: utility and ease of use (KIM et al., 2007; DENNIS et al., 2009).

According to Nakagawa (2008), the UTAUT was developed from the unification and consolidation of eight models and theories, aiming to identify a unique set of determinants for the acceptance of technologies.

These theories and models seek to explain the consumer behavior by interrelating factors such as in the TRA, for instance, attitude precedes intention, which, in turn, precedes behavior.

Nakagawa (2008) studied the adoption of online shopping and the loyalty of consumers to the online channel (Internet). As a basis for the model used, one of the main references was the UTAUT model. Caro (2010) studied the adoption of online shopping and the correlations between the adoption and certain cultural characteristics related to different countries. As one of the main bases used for the model used, Caro (Ibid.) used the decomposed TPB, which is an evolution of the Theory of Planned Behavior.

It is possible to find several studies that use structural models to explain consumer attitudes, intentions and actions both online and conventional (bricks and mortar) retail (CHILDERS et al., 2001; KOUFARIS, 2002; KOO, 2006; OVERBY; LEE, 2006; TO et al., 2007).

Dennis et al. (2009) mention that research from the late 1990s and the beginning of the 2000s indicated that online consumers were primarily concerned with the utilitarian and functional aspects in relation to their purchases. Recent research also considers other types of aspects, such as social interaction, hedonic aspects or value assessment.

Childers et al. (2001), for instance, investigated how consumer attitudes towards the "new" shopping channel (Internet) are influenced by hedonic and utilitarian motivations, in addition to using constructs based on the TAM.

Kim et al. (2007) studied how the value perceived by potential users can influence the intention to adopt mobile internet (or phone). The main dimensions assessed on value were the utilitarian and hedonic potential benefits and the sacrifices related to the difficulty of technology use and the price of the service.

Chen and Dubinsky (2003) developed, in an exploratory study, a conceptual model that relates the consumer perceived value in online shopping with the antecedents called "attractiveness of the previous online shopping experience", perceived product quality, perceived risk and product price; the perceived value is placed in this model as an antecedent factor to the purchase intention.

Gertner and Diaz (1999) verified if the benefits of navigating the Internet showed a dichotomy similar to that presented in the traditional retail environment (physical stores), that is, a dichotomy between hedonism, "a dimension related to fun, spontaneity and search for multi-sensorial experiences," and utilitarianism, "a dimension related to

some sort of conscious search with specific purpose." The authors concluded that this dichotomy can also be derived from the use of the Internet.

2.2. Overby e Lee's model (2006)

Overby and Lee (2006) proposed a model that uses dimensions of customer perceived values (utilitarian and hedonic) in the online retail environment to explain the formation of preference for purchases through a particular website, and in this model, preference is placed as an antecedent to purchase intention through a particular website or online store.

The study of Overby and Lee (2006) confirms all of these associations and stands out in the literature by proposing a parsimonious model that extends the understanding of the factors underlying the intention to purchase online.

Overby and Lee (2006) primarily focused on values and, considering that in the literature regarding physical stores the dimensions related to value appeared to be relevant, they question whether in online stores these dimensions related to value are equally relevant and how they can influence the preference of customers to purchase from a particular online store and also influence on future purchase intentions, even through the preference.

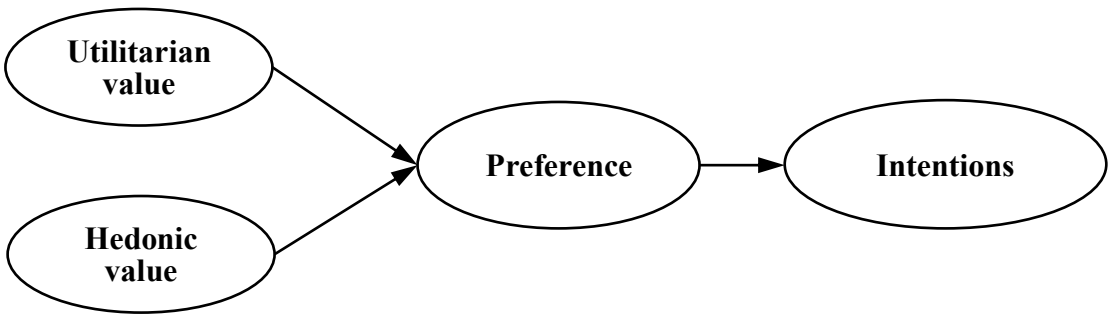

Figure 1 – Model proposed by Overby and Lee

Source: Overby and Lee (2006)

The assumption that hedonic and utilitarian values of customers in online shopping are antecedents to the formation of preference for a particular website mainly stems from two aspects: (1) the observation of Mathwick et al. (MATHWICK et al., 2001) that preference is a characteristic of particular importance in the context of Internet shopping and, (2) studies related to brands show a parallel between the customer values and the preference for certain brands, such as Grewal et al. (1998), among others. Furthermore, the purchase intention through a particular website would be positively influenced by preference, since, according to Overby and Lee (2006), Bagozzi (1992) suggests that the intentions cannot be activated if there is no customer desire. The authors state that the influence relationship between preference and intentions is also consistent with studies that have related customer values to preferences for physical stores and intentions to continually buy from those stores. According to the authors, other studies have related preference to repurchase intentions, such as Pritchard et al. (1999).

Below we focus on the concepts related in the model of Figure 1.

2.2.1 Value

Monroe (1991 apud Ravald and Grönroos, 1996) states that "perceived value is the relationship between perceived benefits and perceived sacrifices," which can be written as a fraction:

Perceived value = Perceived benefits / Perceived sacrifices

In this relationship, the perceived benefits are a combination of product and/or service attributes and technical support available for certain use of the product and also take into account the price and other indicators of perceived quality. On the other hand, the perceived sacrifices include all costs incurred by the consumer, such as the financial price, other acquisition costs, such as freight and cost of service order, repair and

maintenance and risk of failure or poor performance (Ibid.). In line with Monroe, Zeithaml (1988 apud Ravald and Grönroos, 1996) states that the perceived value is the general assessment, by the customer, of product utility, based on his/her perception of what it receives in exchange for what it has ceded. The author stresses that this perception is individual, ranging from customer to customer subjectively and that in some cases, even the same consumer may have different perceptions of the same product at different times.

According to Kotler (1994, p. 48) the "value delivered to the customer is the difference between the total expected value and the total cost" incurred by the consumer. And the "total expected value is the set of benefits" expected for a particular product or service.

Overby and Lee (2006) speculated that the customer decisions are based on multiple dimensions of value related to consumption. Grewal et al. (2003, p. 393), for example, listed four dimensions of value: (1) purchase price, related to the benefits that customers expect to receive in relation to the price they paid for the product; (2) transaction value, which is related to the pleasure of doing good business; (3) use value, which refers to the utility associated with the actual use of the product or service and (4) sale or redemption value, which is the value that the product will have when the customer decides to sell it or when the life cycle of the product ends.

However, according to Overby and Lee (2006), the value dimensions that seems to be the most universal are the utilitarian and hedonic dimensions.

"Utilitarian value is defined as an overall evaluation or judgment of functional benefits or sacrifices" and emphasize that the utilitarian value is distinct from the hedonic value, because the utilitarian value incorporates cognitive aspects and judgments of convenience and time savings, which allows consumers to "save" psychological resources and time (OVERBY; LEE, 2006, p. 1161, our translation). "Hedonic value is

defined as an overall evaluation or judgment of experiential benefits and sacrifices," such as those involving entertainment, experiences out of routine and "escape" from problems or disregard of reality. The authors emphasize that the hedonic dimension of value has historically been studied within the context of traditional retail in physical stores and that this dimension must also be considered in the online retail environment, as stated in the study of Mathwick et al.(2001), who applied a scale called Experiential Value Scale (EVS), which reflects the benefits arising from the customer perceptions about fun, aesthetics, return on investment (customer's point of view) and service excellence.

2.2.2 Preference and purchase intention

Studies regarding the preferences for brands are common in the traditional retail environment. According to Overby and Lee (2006), some of these studies show a parallel between value and the preference for brands. One of the studies mentioned by the authors is that of Erdem and Swait (1998), who consider that market information is asymmetric and imperfect and that this is one of the main drivers of credibility as a determinant of the brands value from the customer's point of view. Erdem and Swait (op. cit.) developed a structural model where they try to study how consumers form an expectation in relation to the brand's value (in other words, the utility associated with the brand choice). The authors propose that the content and clarity of information associated with the brand, as well as the credibility of the brand act as indicators of the product positioning, which could increase the quality perceived by the customer as well as reduce the cost of obtaining information and also the risk perceived by the customer when they choose their products. Overall, the indicators of information and clarity associated with the brand would be antecedents responsible for generating the expectation of value in relation to the brand.

The hypotheses of the study of Erdem and Swait were confirmed and have their general grounds based on the information economy (STIGLER, 1962 apud ERDEM E SWAIT, 1998) and, more particularly, the signaling theory (STIGLITZ, 1987 apud ERDEM E SWAIT, 1998), both representatives of important lines of study of Economics.

Overby and Lee (2006) rely, among other apparently less obvious analogies, on the study of Erdem and Swait (op. cit.) to make a parallel between the formation of preference for a brand with the formation of preference for buying through a particular online store, whereas in the online retail environment, the hedonic and utilitarian values assigned by the customers to the use of a particular online store would serve as important indicators that influence these consumers to form their preferences for buying through this particular online store.

Moreover, preference is associated, in other studies mentioned by Overby and Lee (op. cit.), with continued retail shopping by the customers. Therefore, the authors create the hypothesis, also due to the analogy, that the preference for a particular online store is a factor preceding the purchase intention in online shopping.

2.3. Moderating Variables

We applied the definition of the meaning of moderating variable given in the article of Baron and Kenny (1986), which is as follows:

> In general terms a qualitative moderating variable (such as gender, race, class) or quantitative (such as the level of reward) affects the direction or strength of the relationship between an independent variable (or explanatory) and a dependent variable (or criterion). Specifically in the field of correlation analysis, a moderator is a third variable that affects the zero-order correlation between two other variables. (Baron e Kenny, 1986)

As stated in the introduction, we found in the model proposed and tested by Overby and Lee (2006) a moderating effect of the variable frequency of purchase in relation to the

influence of hedonic and utilitarian values in the formation of preference for buying through a particular online store.

The frequency of purchases (in some cases, frequency of use) is one of the variables mentioned by many references on market segmentation (URBAN; STAR, 1991, p. 121; CRAVENS, 1994, p. 192; LAMBIN, 2000, p. 256).

All references to the use of the variable frequency of purchase indicate the relevance of its inclusion in this study.

Another variable mentioned in studies of online shopping is the type of product sold on the Internet.

Girard et al. (2002) reviewed the theory of classification of products and related the different classes of products to the customer preference for buying through the online channel. Girard et al. (2003, p. 109) emphasize that many studies have found that consumers' buying behavior varies for different product categories, reflecting differences such as the different effort required to buy. Nelson (1974 apud GIRARD et al., 2003) determined that a product of "search" type is the product that customers can evaluate well before buying, or in other words, "when full information on the dominant attributes of the products can be known before the purchase"; "and when it is more difficult or costly to search for information on the dominant attributes of the products, these products are defined as "experience goods", as we learn more about these attributes only after the purchase. In Girard et al. (2002) there is a summary of the different product categories studied by the authors, which include a subdivision for the category of experience products and another category called "credence products." Table 1 summarizes the definitions and also includes examples of products, as seen in Girard et al. (2003):

Table 1 – Definitions and examples of product categories

Product category	Definition	Examples
Search	Full information about the dominant product attributes can be known before the purchase	Books and personal computers
Experience 1	Full information about the dominant attributes cannot be known prior to a direct experience of the product	Clothing and perfumes
Experience 2	Search for information on the dominant attributes is more difficult or costly than the direct experience with the products	Mobile phones and TVs
Credence	An average consumer is not able to verify the quality level of a product attribute and not even the level of their need for the quality offered by the brand	Vitamins and air purifiers

Fonte: Adapted by the authors based on Girard *et al.*(2002) and Girard *et al* (2003).

Some attributes often used as bases in market segmentation studies can be selected as potential moderating variables. For Wedel and Kamakura (2000, p. 7), the basis for market segmentation are defined as a set of variables or characteristics used to assign customers to homogeneous groups. The demographic bases are relatively simple to be measured by marketing professionals or academic researchers (as it requires no extensive questionnaire in order to be measured). Examples of these variables and bibliographic references: gender (OVERBY e LEE, 2006; WEDEL; KAMAKURA, 2000) and education (GIRARD et al., 2003; WEDEL; KAMAKURA, 2000). Examples of variables in online retailing usually employed as behavioral bases in studies of market segments: the influence of familiarity with the website on the intention of buying in the virtual environment (MCKINNEY, (2004); NAKAGAWA, (2008), time of adoption of the Internet as a shopping channel (GEFEN, (2000).

Based on the literature, the following hypotheses are defined in this study:

H1: The intention of buying through a particular website that sells goods over the Internet is positively influenced by the consumer preference for said website. (OVERBY e LEE, 2006)

H2: The consumer preference for buying through a particular website is positively influenced by how useful the consumer believes this website is (utilitarian value). (OVERBY e LEE, 2006)

H3: The consumer preference for buying through a particular website is positively influenced by how pleasant the consumer believes it is to buy from this website (hedonic value). (OVERBY e LEE, 2006)

H4: The influence of the utilitarian value in the preference for buying through a particular website is positive and stronger with the most frequent online shoppers than the least frequent online shoppers. (OVERBY e LEE, 2006)

H5: The influence of the hedonic value in the preference for buying through a particular website is positive and stronger with the most frequent online shoppers than the least frequent online shoppers. (OVERBY e LEE, 2006)

H6: The consumer preference for buying through a particular website is more influenced by the utilitarian value when it comes to males than females. (GIRARD et al., 2003)

H7: The consumer preference for buying through a particular website is more influenced by the hedonic value when it comes to females than males. (GIRARD et al., 2003)

3. Methodological Aspects

3.1. Type of survey and sampling

In order to achieve the objective of this study, a descriptive research was held with consumers who have already bought goods over the Internet.

The approach to obtain the answers for the field research was the convenience sampling and snow-ball technique, which is when the respondents also pass it on to their contacts.

The potential respondents received a link to the questionnaire by e-mail in order to respond and pass on to other contacts. The emails were sent to various mailing lists, including the current graduate students from Faculty of Economics, Administration and Accountability of University of Sao Paulo and former undergraduate and graduate students of the same institution. Students from other institutions in the state of São Paulo and other states also received the emails. The sample consists of 748 participants. The collection of answers took place between May 16 and June 16, 2011.

3.2. Instrument for data collection

Table 2 summarizes the origin or theoretical framework for the questionnaire.

Table 2 – Questions and References

Question number	Variable Name	Reference (if applicable)	Type of scale	
1	Time since adoption (of online shopping)	Proposed by the authors	Ordinal	
2	Recency of Internet shopping	Proposed by the authors	Ordinal	
3	Frequency of purchases in the past 12 months	Inspired by Wedel and Kamakura (2000)	Ordinal	
4	Types of products purchased (online) in the last 12 months	Based on CGI.br (2010)	Nominal	
5	Preference for the channel according to the product	Inspired by Konus *et al.* (2008)	Nominal	
6 and 7	Search before purchase; Preference for the search channel of before the purchase	Nakagawa (2008)	Nominal	
8	Website chosen to respond	Adaptation for Overby and Lee (2006)	Nominal	
9	Familiarity / Trust / Reputation	Nakagawa (2008)	Metric (Grades)	
10	Preference and Purchase Intention	Overby and Lee (2006)	Metric (Grades)	
11	Utilitarian value and hedonic value	Overby and Lee (2006)	Metric (Grades)	

12	Benefits sought	Bhatnagar and Ghose (2004c); Nakagawa (2008); Pelissaro (2009)	Nominal	
13 and 14	Socio-demographic (gender and city)	Inspired by Wedel and Kamakura (2000)	Nominal	
15 and 16	Socio-demographic (age and number of people in the household)	Inspired by Wedel and Kamakura (2000)	Metric	
17 and 18	Socio-demographic characteristics (family income and education)	Inspired by Wedel and Kamakura (2000)	Ordinal	

Fonte: Authors.

Comments on the formulation of questions:

Question 1: According to Gefen (2000, p. 725), "familiarity is a precondition for trust and trust is a prerequisite for social behavior." A longer time since the first Internet shopping would possibly indicate a higher familiarity with this channel.

Question 2: This question allows us to find how recent the most recent purchase over the Internet was.

Question 3: Variable of interest for the study of the use of the Internet as a shopping channel, especially for the managers to understand which are the main variables correlated with high frequencies of online shopping.

Question 4 (Types of products purchased online in the last 12 months): This question is meant to stimulate the respondent to recover their purchases by memory.

Questions 5, 6 and 7: Question 5 is based on Konus et al. (2008) who conducted a study to investigate how consumers could be assigned to different segments based on 1) their search for information and 2) purchases in a multichannel environment. In the case of question 5, we only considered the preference for the shopping channel according to the type of product. On the other hand, questions 6 and 7 aim to conduct a survey, not separated by the type of product, of the consumer preference for searching information according to the channel (online or physical store).

Question 8 (website chosen to answer): The constructs from the study of Overby and Lee (2006) question about values, preferences and purchase intentions in a specific website. This question makes the respondent define a reference website for the following questions.

Question 9: This set of variables derived from the study of Nakagawa (2008, p. 141) who showed an association between the future purchase intention to shop online and this construct.

Questions 10 and 11: These constructs were extracted from the article Overby and Lee (2006, p. 1163) and adapted to the Brazilian context (Table 3).

It was also careful to point out the differences (with capital letters) between the questions of the same construct so that they were not perceived as being very similar.

Table 3 – Constructs of the chosen model

Preference (PREF)	
PREF1	This website is my favorite when I need to make a purchase.
PREF2	This website is my first choice when I compare with others of this type.
PREF3	This website is the best way of acquisition for the type of product I buy or bought.
Intention (INT)	
INT1	This website is one of the first places I intend to check when I need the types of products it sells.
INT2	I intend to continue to buy on this website, and not in others, in the coming years.
INT3	I am willing to continue to buy on this website in the coming years.
INT4	I intend to continue to visit this website in the future (indefinite time ahead).
INT5	I intend to continue to visit this website in the future (indefinite time ahead).
Utilitarian Value in Internet shopping (VUT)	
VUT1	Given the quality of the product I bought, the price I paid is good, that is, it is at an appropriate level.
VUT2	When I buy from this website I save my time.
VUT3	The product(s) I bought from this website was (were) a good buy.
VUT4	Shopping in this website is worth because it allows me to save money.
Hedonic Value in Internet shopping (VHE)	
VHE1	Shopping in this website totally holds my attention.
VHE2	This website not only sells products but it also has interesting things that entertain me.
VHE3	Shopping through this website makes me forget the world around me.
VHE4	Shopping through this site is like an “escape” from daily problems.

Source: Adapted by the authors from Overby and Lee (OVERBY; LEE, 2006, p. 1163)

For questions 9 to 11, we chose to use a scale of grades from 0 to 10, with the possibility of grading with decimals, such as 8.1 or 4.3. It was explained to the

respondents that the grades 0 to 10 represent the degree of influence and for a better reference for the assignment of the grades, they were divided in five: very low grade - for grades from 0 to 2; low grade – for grades from 2.1 to 4; regular grade – for grades from 4.1 to 6; high grade – for grades from 6.1 to 8; and very high grade – for grades from 8.1 to 10. A similar scale was successfully used by Nakagawa (2008).

Question 12: To simplify the answer to this question, we chose to leave it as multiple choice question.

Table 4 shows the references for question 12:

Table 4 – Benefits sought (advantages) in Internet shopping

Benefits sought	Source (adapted from)
Buying over the Internet makes it possible to compare information about prices, products and stores more easily.	Bhatnagar and Ghose (2004)
It is more convenient to buy online when you do not need to have physical contact with the product being purchased.	Nakagawa (2008)
There is greater convenience in buying over the Internet because it is possible to buy any day, time and from anywhere.	Pelissaro (2009)
Buying over the Internet is faster and saves time.	Pelissaro (2009)
It is more convenient to buy online because it is not necessary to go to the physical store.	Pelissaro (2009)
There are usually better prices on the websites.	Bhatnagar and Ghose (2004b, p. 1357) and Pelissaro (2009, p. 76)
It is worth buying over the Internet when you are willing to wait for the delivery.	Nakagawa (2008, p. 139)
It is safer to buy online.	Pelissaro (2009)

Source: compiled by authors.

Questions 13 to 18: These questions are used to describe the respondents in terms of some socio-demographic variables selected for this study.

Before preparing the final version of the questionnaire, two pre-tests have been made with people who were used to buying online and who were chosen by convenience by the authors.

3.3. Analysis technique used – Structural Equation Modeling (SEM)

According to Bido et al. (2009), structural equation modeling (SEM) combines aspects of multiple regression and confirmatory factor analysis, and study the relationship among constructs through path analysis.

There are two types of estimation methods used in the SEM, which are based on the covariance (MEEBC) and the partial least squares or PLS or MEEPLS, which is based on variance. According to Zwicker et al. (2008) the two estimation methods have important differences and serve as guides for choosing one or the other (Table 5).

Table 5 – Differences between MEEPLS and MEEBC

Criteria	MEEPLS (*soft modeling*)	MEEBC (*hard modeling*)
Objective	Prediction	Explanation: causal models, tests of theory.
Requirements regarding the theory	More flexible, more exploratory context.	Strongly dependent on theory.
Distribution of data	There are no assumptions and that is why it is said to be soft.	Depending on the estimation method, the variables should present a multivariate normality.

Source: Excerpted from Zwicker *et al.* (2008)

Table 5 indicates that the MEEPLS approach is the most appropriate for this study.

According to Zwicker et al. (2008, p. 5), PLS lacks an overall measurement to fit the models to empirical data. To mitigate this characteristic, Tenenhaus et al. (2005) apud Zwicker et al. (Ibid.) proposed an index of model fit (GoF - Goodness of Fit), determined by the geometric mean between the average (adequacy of the structural model) and the mean of the average variances extracted (AVE - Average Variance

Extracted) of each construct (adequacy of the measurement model), weighted by the number of indicators.

4. Results analysis

We begin by presenting the descriptive statistics of the sample and respondents general purchase behavior in online retail. Subsequently, we use Overby and Lee´s model (2006) to analyze the relationships among constructs (structural equation modeling). The analyses culminate with the evaluation of the moderating variables effect on the associations between constructs.

4.1. Descriptive statistics

Most of the total samples collected (748) consists of male individuals (approximately 55% or 413 individuals) and, therefore, women represent 45% (335) of the sample.

Regarding the distribution of family income (defined in the question as the sum of the incomes of people living in the same household of the respondent) there is a greater concentration of respondents in the income levels higher than R$ 7,000 per month, for as we sum the income levels greater than this value, we reach 55.2% of the sample.

With regard to the level of education, there was a large concentration of respondents (67.6%) with complete or incomplete postgraduate degree (506 responses). Respondents with higher education accounted for 20.3% (152 responses) of the sample and those with high school education or incomplete higher education represent 11.6% (87 responses) of the sample. There were no respondents who did not complete elementary school.

Respondents living in cities of the state of São Paulo accounted for 79.5% of the sample, with 595 responses, and the sum of the percentage of respondents living in the states of Goiás, Distrito Federal and Espírito Santo accounted for 10% of the sample,

approximately 3% for each state. For other Brazilian states, the percentages presented were equal to or lower than 2%.

As for the age of the respondents, the average is 35 years old. The number of people in the household presented a median and mode equal to 3 and 2, respectively.

4.2. Purchasing behavior and preference for channel

More than 50% of the respondents have adopted the Internet shopping for over 6 years. In addition, more men have adopted the Internet shopping for longer time and therefore are more familiar with this means of acquiring products (83% of men have adopted the Internet shopping for at least four years, in contrast to 68% of women).

As for the recency of Internet shopping, more than 59% of the respondents had shopped online for less than 30 days.

With regard to the frequency of purchase over the Internet in the last 12 months, almost 99% of the respondents made at least one purchase over the Internet during this period.

Books were the most purchased products by the respondents of the sample (75.2%), followed by computer products (45.8%) and electronics (44.7%). Clothing and cosmetics were the products purchased by the lowest percentage of respondents.

With respect to the preferred channel to purchase according to the products, books are the category of products with the lowest rejection (higher preference) to purchases by the online channel, while clothing is the category with the highest rejection (lower preference). We also obtained reasonably similar preference patterns among the products GPS device, laptops and microwave (oven), with a preference balance by marketing channel (physical stores versus online).

There was a rate of 98.2% of respondents who usually search before buying. It was found that 94.5% of the respondents often search the Internet before buying in physical

stores and 98.6% of the respondents very often search the Internet before making their purchases online.

Question 8 is a reference question that precedes the questions relating to the indicators of the structural equation modeling. In this question, the respondent should choose a website where they have recently purchased a product or a familiar website. There was a good distribution of answers for different websites. Most of the websites chosen by the respondents refers to Brazilian retail stores. However, we should highlight the number of answers where the Amazon website (without headquarters in Brazil at the time, but with international operations) was chosen.

The two benefits most selected by the consumers of the sample were related to convenience. With 91.3% of responses, the benefit of comparing information about prices, products, stores and services stand out as well as the benefit of purchasing any day, time and from anywhere, with 82.8%.

Less than 2% of the respondents believe that buying over the Internet is safer than shopping in physical stores.

4.3. Application of structural equation modeling technique (SEM)

The SmartPLS software version 2.0M3 (RINGLE et al., 2005) was used for the application of the SEM technique with the purpose of testing the adhesion of the Overby and Lee's model (2006) to the data in this study. The chosen model is shown in Figure 2.

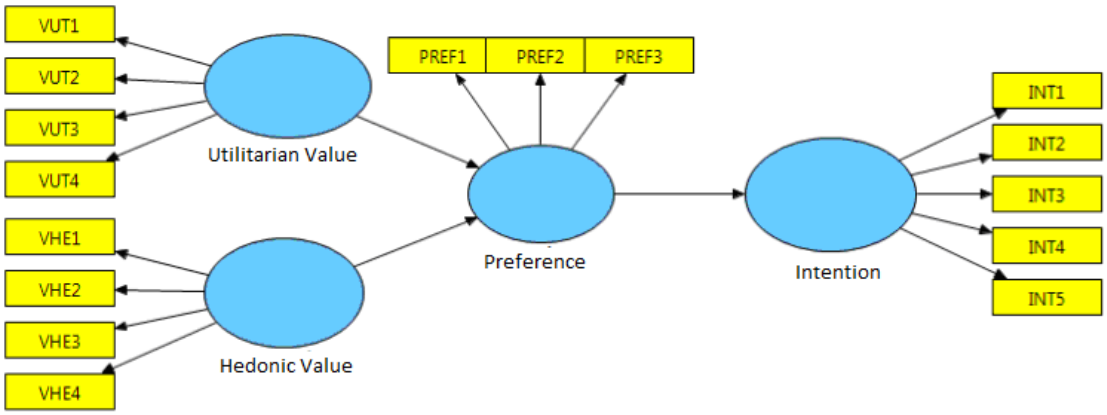

Figure 2 – Chosen model and its constructs

According to Henseler et al. (2009, p. 298), the evaluation of the results for the structural equation modeling using PLS-PM has two main stages. The first is the evaluation of the measurement model and the second is the evaluation of the structural model.

4.3.1. Measurement model

All indicators are reflexive, and the reliability and convergent and discriminant validities should be verified (op.cit., p. 299). Reliability should be measured by the analysis of the factor loading coefficients and the composite reliability coefficient (ibid.). The factor loading coefficients for each indicator should ideally be greater than 0.7 (in module), but values ranging from 0.4 to 0.7 are acceptable. Indicators should be removed from the model only if it generates a substantial increase in the composite reliability.

All factor loadings obtained are higher than 0.7, except for INT4 and VUT2, with lower values (0.534 and 0.625, respectively), but they are still acceptable.

The composite reliability coefficients are satisfactory for values above 0.7 in the early stages of research, and for values above 0.8 or 0.9 in more advanced stages of research (NUNALLY e BERSTEIN, 1994 apud Henseler, Ringle et al. 2009). The following

coefficients were obtained: 0.898 (Purchase Intention), 0.924 (Preference), 0.866 (Hedonic Value) and 0.853 (Utilitarian Value), indicating that the measurement model is reliable.

The convergent validity indicates the degree to which different indicators of the same construct are correlated. Its verification occurs based on the average variance extracted (AVE - average variance extracted), which must indicate values greater than 0.5 for all constructs (Henseler, Ringle et al. 2009). The lowest value obtained was 0.594 the Utilitarian Value. Therefore, the measurement model indicates convergent validity.

The discriminant validity indicates the degree to which different constructs are indeed distinct. For a given construct, it is assumed that each indicator belonging to it has greater power of explanation on this construct than any other indicator belonging to the other latent variables. The verification should be made from two criteria. The first is the Fornell-Larcker criterion, which consists of comparing, for each given construct, the corresponding AVE with the correlation coefficients between this construct and each other construct the model, and the square root of each AVE should be greater (in module) than all correlation coefficients of this construct with others. The second consists in analyzing the factor loadings of the indicators on the other constructs to which these indicators do not belong. These factor loadings should always be lower (in magnitude) than the loads on the construct to which they belong (HENSELER et al., 2009, p. 299-300).

The two criteria were met, so the model also has discriminant validity.

4.3.2. Structural model

Henseler et al. (2009, p. 303) lists three criteria that must be evaluated for the structural model: 1) R^2 (Coefficient of determination) of the endogenous latent variables; 2)

estimates for the path coefficients (signal, magnitude and significance); and 3) predictive relevance (Q^2).

Criterion 1: There were obtained, respectively, the following values of R^2 for preference and purchase intention: 0.273 e 0.545. According to Chin (1998) apud Henseler et al. (2009), values of 0.67; 0.33 and 0.19 are considered, respectively, substantial, moderate and weak. However, for models where the endogenous variables are explained by only one or two exogenous variables (which is the case of the model in question), moderate values are considered acceptable. The coefficient of determination found for preference is slightly lower than the moderate. On the other hand, the coefficient of determination of the purchase intention is above moderate and closer to be considered substantial. In this case, we can say that this first criterion was met.

Criterion 2: estimates for the path coefficients. According to Henseler et al. (Op. cit. 2009, p. 304), the significance of the path coefficients should be initially verified through the Bootstrap technique. Each sample must have the same size as the original sample and the samples taken by the procedure are made with replacement. To carry out this procedure, we chose 1000 samples (of size equal to 748 each).

The significance obtained from the three path coefficients in conjunction with the positive sign for the paths allows the confirmation of the first three hypotheses of the study (Table 1), highlighting a greater association between utilitarian value and preference, in comparison with the relationship between hedonic value and preference.

Table 6 – Tests for the hypothesis 1 to 3 – structural model

Path		Path Coefficient	Path Signal	Acceptance of hypothesis
Construct Source	Construct Target			
Preference	Intention	0.738	+	Yes
Utilitarian value	Preference	0.387	+	Yes
Hedonic value	Preference	0.259	+	Yes

The hypotheses 1 to 3 are reproduced below:

- H1: The intention to buy through a particular website that sells goods over the Internet is positively influenced by the consumer preference for said website.
- H2: The consumer preference for buying through a particular website is positively influenced by how useful the consumer believes this website is (utilitarian value).
- H3: The consumer preference for buying through a particular website is positively influenced by how pleasant the consumer believes it is to buy from this website (hedonic value).

Criterion 3: relevance or predictive capacity (Q^2). Henseler et al. (Op. cit., p. 303-304) recommends that a verification of the predictive relevance of the structural model be made through the Stone-Geisser test, based on the statistics denominated Q^2 that uses a procedure called blindfolding to manipulate the measurements. The authors (Ibid.) argue that values greater than zero show that the model has predictive relevance.

The blindfolding procedure was performed with the aid of SmartPLS. It was found that the constructs hedonic value and utilitarian value are able to predict values of the indicators of the construct preference ($Q^2 = 0.215$), as well as the construct preference is able to predict (to a greater degree, that is $Q^2 = 0.328$) the values of the indicators of purchase intention.

Therefore, criteria 1, 2 and 3 have been met satisfactorily.

To complement the analysis, see below another criterion commonly used to evaluate structural models: GoF. For the model, the average R^2 was 0.41 and the average AVE was 0.66 and therefore the calculated value of GoF was 0.52 (geometric mean of these two indices). Although there are no reference values for this index, we can accept this

result as appropriate because the minimum criteria for AVE have been set at 0.5 (HENSELER et al., 2009, p. 299).

The results of the analysis of the measurement and structural models allow us to conclude that there was a good adhesion of the model of Overby and Lee (2006) to the data on consumer behavior in online retailing. The coefficients of determination

R^2 for the constructs purchase intention (INT) and preference (PREF) proved to be satisfactory, but at a lower level for the preference. To achieve greater determination of the construct preference, it would be necessary to include new potentially explanatory factors based on new theoretical points. Despite the restriction to the coefficient R^2 obtained for the construct preference, overall, the other statistics presented in this section indicate that the model adapted to the online channel can offer subsidies to retailers that operate in Internet sales in order to strengthen the adhesion of effective and potential consumers to this sales channel.

4.4. Moderating Variables

The analysis of the moderating effect in structural equation modeling should be done through the partition of the total original sample in multiple groups (HAIR JR. et al., 2009; HENSELER et al., 2009), and the same model structure should be used for each group (HAIR JR. et al., 2009, p. 662).

In this study, there are a number of variables that could possibly be moderating, originating from various studies mentioned in section 2.3: product type, gender, time of adoption, education, influence of familiarity with the website, frequency of purchases.

We conduct an analysis below to verify the moderating effect of these variables in relation to the measurement and structural model.

4.4.1. Comparison of the measurement model

According to Maruyama (1998, p. 261), if each indicator of the measurement model is the same for different groups, the same latent variables can be compared in the structural model. To make this test possible, the following procedures commented below were conducted, based on Bido (2007), Maruyama (1998, p. 259) and Shipley (2000, p. 74).

With the aid of the SmartPLS (RINGLE et al., 2005), bootstrap tests were processed with parameters 5000 (for the number of bootstraps) and size of each group or segment (for the sample size).

For each indicator and each group, we calculated the t value to perform the Student's t test used to determine significant differences of distribution between the indicators of each group and the indicators of the total original sample.

All parameters required for this calculation are provided by the processing of the Bootstrap algorithm of SmartPLS (RINGLE et al., 2005).

After calculating the t value and the probabilities of differences of each indicator of the segments in relation to the total original sample data, some of these differences may be statistically significant. Bido (Ibid.), based on Shipley (SHIPLEY, 2000, p. 74), also recommends the performance of a probability test between the set of all indicators of the segment and the set of all indicators of the total original sample. For this, we used "Fisher's C-test" (name given by Shipley for the test) to assess the composite probability (hence the letter "C") of the difference of the measurement models as a whole - and not only considering an indicator at a time. The statistic of this test has a chi-square distribution with 2k degrees of freedom. There are 16 indicators in this study (Figure 2), accounting for 2k = 32. Table 2 summarizes the results obtained.

Table 7 – Comparison of the measurement models between the segments and the total sample

Segmentation variable	Segment (indicator)	Composite probability	Purchase Intention	Preference	Hedonic value	Utilitarian value
Search Categ	Books	0.02				
	CD_DVD	0.00	INT2, INT5			
Exper Categ 1	Clothing	0.03	INT4			
	Perfume / cosmetics	0.38				
Exper Categ 2	Electronics	0.11		PREF2		
	Appliances	0.10	INT4			
	Telephony	0.00		PREF2 PREF3		
	Computers	0.00	INT3	PREF2 PREF3		
Gender	Female	0.18				
	Male	0.25				
Time of adoption	Less than 1 year	0.00	INT2	PREF3		
	1 to 3 years	0.01			VHE3	VUT4
	More than 3 to 6 years	0.00	all	PREF3		
	More than 6 years	0.01				
Education	Post-graduate	0.30				
	Complete higher education	0.04				VUT2
	Elementary/High School	0.02			VHE3, VHE4	
Influence of familiarity with the website	High grades	0.26				
	Low grades	0.05				
Frequency of purchases	More than 12 times	0.25				
	7 to 12 years	0.01				
	3 to 6 years	0.14				
	1 to 2 years	0.04				

In Table 7, it is mentioned in each one of the four constructs the indicators that showed significant differences between the specific segment (corresponding to each line) and the (not segmented) total sample.

In fact, only when the composite probabilities are greater than 0.05 in the proposed test, it can be said that there were no changes in the measurement models for the different segments. The composite probability was greater than or equal to 0.05 and, in fact, no indicator showed a significant difference between the segment and the total sample for eight segments: perfume/cosmetics, female gender, male gender, post-graduate education, high and low grades for the influence of familiarity with the website, frequency of purchase more than 12 times and from 3 to 6 times. It should be expected in the significance tests of the indicators (Maruyama test, 1998) the situation of at least one indicator being significant to correspond to values of the composite probability lower than 0.05 (there were two exceptions: electronics and appliances, which would demand a level of significance greater than 0.11 and 0.10, respectively, to be consistent in the two criteria used). Similarly, segments that showed no significantly different indicators in relation to the overall sample should present the composite probability greater than or equal to 0.05 (4 exceptions were observed: books, time of adoption higher than 6 years, frequency of purchases from 7 to 12 times and 1 to 2 times). Strictly speaking, the composite probability is not necessary for cases where the Maruyama test revealed no significant differences. Out of the 23 segments analyzed according to the criteria of Maruyama (1998) and Shipley (2000), 6 showed contradiction in the comparison of two criteria, 8 showed no difference in the measurement model with respect to the non-segmented sample and 9 showed distinction in their specific model.

With the prominent exceptions, we continue with the analysis of the structural models focusing on 12 segments: 1 - books, 2 - perfumes / cosmetics, 3 – female gender, 4 – male gender, 5 - time of adoption higher than 6 years, 6 – post graduate level, 7 – high grades and 8 - low grades for the influence of familiarity with the website, 9 - frequency of purchase of more than 12 times in 12 months, 10 - from 7 to 12 times, 11 - 3 to 6 times, 12 - 1 to 2 times.

4.4.2. Comparison of the structural model

Henseler et al. (2009, p. 309) propose an approach for the comparison of coefficients in the analysis of multi-groups with the use of nonparametric tests.

Firstly, the samples of each group are subjected to the bootstrap procedure and then, the results achieved serve as a reference to compare the differences between the groups. According to the authors (Ibid.), all interactions for the comparison between groups should be made and this approach can be seen as a Mann-Whitney test applied to all values found in the Bootstrap adjusted to the original values of the parameters.

Table 8 – Comparison of the measurement models between the segments and the total sample

		R^2		Path coefficient			Prob. Path Coef. > than Original Coef.		
Segmentation variable	Segm.	R^2 INT	R^2 PREF	VHE->PREF	VUT->PREF	PREF->INT	VHE->PREF	VUT->PREF	PREF->INT
Segmentation variable		0.545	0.273	0.259	0.387	0.738	-	-	-
Search Categ	1	**0.468**	0.237	0.205	0.394	0.684	0.184	0.544	**0.056**
Exp1 Cat.	2	0.741	0.308	0.401	0.246	0.861	0.805	0.235	0.778
Gender	3	0.549	**0.322**	0.236	0.461	0.741	0.315	**0.904**	0.542
	4	0.541	0.250	0.286	0.332	0.735	0.706	0.188	0.472
Time of adoption	5	0.504	0.206	0.244	0.320	0.710	0.376	0.141	0.187
Education	6	0.545	0.246	0.292	0.330	0.738	0.768	0.155	0.501
Influence of familiarity with the website	7	0.505	0.238	0.210	0.386	0.711	0.118	0.492	0.166
	8	0.561	**0.376**	0.442	0.349	0.749	**0.990**	0.322	0.616
Frequency of purchase (12 months)	9	0.584	0.247	0.292	0.337	0.764	0.694	0.297	0.766
	10	0.463	0.243	0.221	0.381	0.680	0.257	0.466	0.159
	11	0.566	0.306	0.221	0.448	0.752	0.230	0.850	0.690
	12	0.554	**0.321**	0.419	0.275	0.744	**0.969**	0.157	0.557

The comparison of the path coefficients guided the construction of Table 8 and this comparison was always made between the coefficients of each segment and the coefficients of the total original sample (without segmentation).

For example, the comparison between the path coefficient "PREF→ INT" of segment 1 "Books" (0.684) is made with the same path coefficient of the original sample (0.738). The probability of these coefficients to be truly different is 0.056. In this case, probability values next to zero indicate that the parameter (coefficient) being compared is probably lower than the original parameter (of the sample without segmentation) and the probability values next to 1 indicate that the parameter being compared is probably greater than the original. Based on this logic, we highlighted with different colors the probabilities in the following ranges: yellow – between 5% and 10%, blue – between 90% and 95%, green – above 95%.

For the rows where any of the path coefficients indicate probability next to zero or 1, the respective coefficients of determination (R^2) are highlighted and the corresponding path coefficients are italicized

The next step consists in testing the hypotheses H4 to H7 formulated in section 2.3.

- H4: The influence of the utilitarian value in the preference for buying through a particular website is positive and stronger with the most frequent online shoppers than the least frequent online shoppers. (OVERBY and LEE, 2006)

Result: Not confirmed. Table 8 shows that the coefficient VUT-> PREF is not significantly higher than the average for the segments of most frequent purchase (that is, for segments 9 and 10, who buy more than 12 times per year or 7 to 12 times per year, respectively).

- H5: The influence of the hedonic value in the preference for buying through a particular website is positive and stronger with the most frequent online shoppers than the least frequent online shoppers. (OVERBY and LEE, 2006)

Result: Not confirmed. Table 8 shows that the coefficient VHE->PREF is not significantly lower than the average for the segments with least frequent purchase (that is, segments 11 and 12: who buy 3 to 6 times or 1 to 2 times per year respectively). Contrary to this hypothesis, the segment represented by consumers who buy from one to two times per year showed a significantly higher coefficient for HEV-> PREF in relation to the average.

- H6: The consumer preference for buying through a particular website is more influenced by the utilitarian value when it comes to males than females. (GIRARD et al.,(2003)

Result: Not confirmed. Table 8 shows that the coefficient VUT-> PREF is not significantly higher than the average for the male segment (segment 4). On the other hand, the same coefficient was greater than the average for the female segment.

- H7: The consumer preference for buying through a particular website is more influenced by the hedonic value when it comes to females than males. (GIRARD et al., 2003)

Result: Not confirmed. Table 8 shows that the coefficient VHE-> PREF is not significantly higher than the average for the female segment (segment 3).

The non-confirmation of hypotheses 4 to 7 offers interesting subsidies for managers of online retailing, as it allows them to detect the characteristics of consumers who are more susceptible to stimuli of marketing actions.

In addition to the segments outlined in hypotheses 4 to 7, we found the following relationships:

- People who are less susceptible to the influence of familiarity with the website tend to have higher preference for buying through a particular site (in relation to the total sample) if that website provides a greater hedonic value.
- The purchase intention is less influenced by the preference for buying at a website in the case of search-type products (books).

The results of the analyses of the measurement and structural models in the sample of 748 cases concluded that there was a good adhesion of Overby and Lee' model (2006) to the data collected on the consumer behavior in online retailing with little restriction to the R2 coefficient obtained for the construct preference.

In view of the moderating variables, market segments were found for which differences and/or similarities were observed in relation to the total sample in the associations between hedonic value versus preference, utilitarian value versus preference and preference versus purchase intention. It is believed that the results obtained provide companies operating in the ecommerce a greater understanding of the needs of these consumers.

5. Conclusions

The positive trend of online shopping in Brazil motivated this study, which was guided by the following question:

- how the relationship between the future purchase intention in a particular online store versus the values and preference for an online store could be moderated by variables of the consumer profile?

This study aimed to use a parsimonious model that relates factors preceding the intention of buying in an online store and test its stability in view of the effect of variables of the consumer profile in the virtual environment.

Based on references of various studies about the consumer behavior in online retailing and the model developed by Overby and Lee (2006), a descriptive survey was conducted with consumers who have already purchased goods over the Internet.

The universe of interest consisted of people living in Brazil that have already purchased over the Internet. A convenience sample was conducted using an electronic questionnaire. The sample included 748 participants.

The structural equation modeling of this study, which can be summarized as "Value→Preference→Intention", showed that the intention of buying through a particular website is strongly correlated with preference and that this preference is only moderately explained by the utilitarian and hedonic values associated to buying by the website. In this case, the utilitarian value is most associated with preference than the hedonic value, and this indicates that most consumers purchase over the Internet mainly because they save time and money and also because of the good purchases they are able to make (components of the construct VUT). With respect to the purchase intention, approximately 55% of the variance found was explained by preference, index of magnitude between moderate and substantial. In addition to the variance explanation, the study showed that the model has predictive relevance, that is, by knowing the level or degree of a construct, it is possible to predict, based on the model, the values of the subsequent constructs in the structural path.

The variable frequency of purchase revealed that less frequent online shoppers are more likely to be influenced by the hedonic value in the preference for buying through a particular website.

Considering the moderating variable gender, for the female segment, the utilitarian variable was significantly more important in determining the preference than in the model adjusted to the original non-segmented data.

As for the familiarity with the website, consumers less susceptible to this influence feel more strongly the impact of the hedonic value on the preference for buying through a particular website.

For the segment of books, the influence of preference in determining the purchase intention was significantly lower than the average (that is, the total sample).

It should be remembered that the sample obtained proved to be biased mainly because it consists of individuals with complete or incomplete post-graduate level in educational institutions in Brazil and that together account for 67.6% of the cases.

Moreover, the findings of this study are subject to the limitation of the convenience sampling type, where the main implication is that the sample does not represent the population studied. Therefore, the conclusions cannot be generalized.

Notwithstanding the methodological restrictions of this study, the results found can provide important insights for the efficient management of online retail in order to provide special treatment to the variables implied in the constructs of values, preference and purchase intention in the virtual environment and the different reactions to these stimuli expressed by specific market segments.

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