Knowledgeable consumers are like "stalkers": the effect of consumers' previous knowledge on the amount of information sought in post-decision timespan

Nowadays, consumers have more previous knowledge about products/services before making decisions. As they can easily access the internet, they often engage in showrooming or webrooming, which increase their knowledge. This might be a source of concerns because both, researchers and retailers, do not know all the effects of consumers' previous knowledge on consumers' behaviors. In this paper, we shed lights on one of these effects: the effect of consumers' previous knowledge before making decisions on the amount of information sought in post-decision/purchase timespan. The information sought in this phase helps consumers to reaffirm their decisions, diminish back-out behaviors, and increase repurchase intentions. Previous literature argues that this sought occurs because of cognitive dissonance and feelings of regret or dissatisfaction (Shani & Zeelenberg, 2007). We present two studies (experimental and correlational studies) to show that this view is incomplete. Our findings suggest that consumers who have previous knowledge about a specific product will search great amounts of information about this product in post-decision/purchase phase. Besides, this main-effect is stronger (weaker) for consumers with high (low) maximizing tendencies. Finally, we show the main approaches used by consumers when they look up information in the last phase of their journey and an exploratory investigation which resulted in some insights about consumers' main motivations to still search information during the post-purchase phase. Our research shows that consumers with considerable previous knowledge are like stalkers because they still search information about the purchased product: they browse online stores, talk to friends/relatives, read reviews.

Keywords: consumers' previous knowledge, information search behavior, post-decision/purchase

Introduction

According to the 2017 Global Mobile Consumer Survey (US edition), collectively, all 264 million US smartphone users look at their devices some 12 billion time a day. These users are consuming information. Tools to access, acquire, summarize and arrange information are easily consumable (Dholakia et al., 2013). For instance, in consumption settings, consumers are able to easily engage in behaviors like showrooming and webrooming (Mehra, Kumar & Raju, 2017) because they can look up information on the internet through smartphones, iPad, and laptops. Consequently, they get more knowledge about goods and services before making a decision. Dholakia et al. (2013) point out that, in the economy of information, the difference between the consumption of information and acquisition of knowledge has become blur. This way, as consumers gather a lot of information before purchasing, they become more knowledgeable about available options and the features of products. Thus, these consumers have a great amount of previous knowledge before making decisions/purchases.

Previous knowledge affects information search behavior either positively or negatively (Hadar et al., 2013; Carlson et al., 2009; Brucks, 1985). Some studies show that knowledge may increase the amount of information individuals search because knowledgeable individuals can easily formulate more questions and they are more capable to find information (Brucks, 1985). On the other hand, studies demonstrate that knowledge diminishes the amount of information sought by individuals because knowledge may mitigate the desire for new information (Brucks, 1985; Carlson et al., 2009). These studies investigate the relationship between consumers' previous knowledge and information search behavior in the pre-decision/purchase phase.

As consumption experience does not end when consumers make their final purchase decision, the behavior of searching information still occur after purchasing (Oliver, 2014).

However, both, researchers on consumer behavior and retailers, have been overlooking the information search behavior in post-decision timespan. In this phase, the main interest is in issues like word of mouth (e.g., Richins, 1983; Hennig-Thurau et al., 2004) and consumers' satisfaction (see Wirtz & Matilla, 2007; Lee & Kim, 2008). The information sought in post-decision timespan is part of consumers' experience (Lemon & Verhoef, 2016). This helps consumers to reaffirm their decisions and diminish back-out behaviors (Donelly & Ivancevich, 1970; Bettman, Luce & Payne, 1998). Thus, it is important to investigate this behavior in post-decision/purchase timespan as well.

Furthermore, previous research on information search behavior in post-decision/purchase timespan argues that this search occurs because of cognitive dissonance and feelings of regret or dissatisfaction (Oliver, 2014; Shani & Zeelenberg, 2006). In this paper, we claim that this view is incomplete because researchers did not factor the product knowledge held by consumers before making the final decision into their models for post-decision information search behavior. Therefore, we investigated the effect of consumers' previous knowledge on the amount of information sought in post-decision timespan. To the best of our knowledge, past studies have not investigated this main effect (see Carlson et al. (2009)'s study). In addition, this new predictor is in tune with a current phenomenon (i.e., a boost of consumers' knowledge before making decisions through the widespread access of information (Dholakia et al., 2013)). Besides, following Lemon & Verhoef (2016)'s claim, this study analyzes consumers' behavior through the link between two important stages of their journey: the pre and post-decision/purchase phases.

This way, first, we conducted a single factor between subjects experiment to investigate the existence and direction of the main effect proposed because previous knowledge may elicit both, positive and negative effects on the amount of information sought. Second, we conducted a correlational study to investigate with real purchases the joint effect of previous knowledge, satisfaction and cognitive dissonance on information sought at post-decision phase. Third, in this correlational study, we investigated an interaction between previous knowledge and maximization tendencies as well. Maximizing is one of the most important terms used in decision-making studies and it entails seeking the best outcomes through an exhaustively search of all possible options (Luan & Li, 2017). We show that high levels of maximizing tendencies strengthen the effects of consumers' previous knowledge on information search behavior at post-decision stage. Finally, we present where consumers usually look up information when it is widely available and some insights from an exploratory investigation with six consumers about their motivations to search information in post-decision timespan.

Our findings suggest the existence of a positive linear effect between consumers' previous knowledge and the amount of information sought in post-decision/purchase. Moreover, satisfaction has a nonsignificant effect and cognitive dissonance has a significant effect on the amount of information sought in post-decision timespan. Cognitive dissonance is not the explicative mechanism for the main effect.

This study has some contributions. Firstly, to the best of our knowledge, this is the first study to shed lights on the effect of consumers' previous knowledge in pre-decision/purchase timespan on the amount of information sought in post-decision/purchase timespan. Thus, we present a more complete view of consumers' behavior during the decision-making process. Nowadays, consumers have more knowledge about products when they go to a retailer. However, both, researchers and retailers, may not know the entire range of effects of this knowledge on consumers' behavior during the decision-making process. In this study, we present one of these consequences. If retailers know that consumers look up information at post-decision/purchase stage, they can help consumers to find this information for example. Also, retailers can select pieces of information reinforcing consumers' decision. This diminishes back-out behaviors (Donelly & Ivancevich, 1970). Unfortunately, companies

usually invest less in the post-decision/purchase phase of consumers' journey (Brega, 2018). Nevertheless, if there is a great attention and investment in this phase, companies will be more capable to create a "loyalty loop" according to the president of Whirlpool João Carlos Brega[i]. This research may help companies to know more about consumers' behavior in post-decision timespan, which may help them to get "the loyalty loop" easier.

Consumers' previous knowledge (objective and subjective knowledge)

If one looks up the word "knowledge" in an online dictionary, one will probably find that "knowledge is a set of information, skills, and facts acquired by someone through education/experience during her/his life". Therefore, one could conclude that knowledge provides people with awareness or familiarity about a certain issue. For example, if the reader actually searched for the word "knowledge", now the reader may hold a (potentially) new piece of information about the concept of knowledge that corresponds to some knowledge of this issue in the reader's memory.

During life, individuals need to make several decisions. As consequence, they accumulate some expertise on making choices. Across different areas, previous knowledge of the decision-maker attracts researchers' attention (Hadar et al. 2013; Shane 2000; Brucks 1985; Bettman & Park, 1980). Previous knowledge is the set of knowledge held prior to a particular moment. In this work, we comply with Brucks' (1985) approach which states that previous knowledge consists in information stored in individuals' memories in a specific moment. In consumption settings, previous knowledge would reflect how much one knows in terms of brand names, usage procedures, product features, and other factual elements (Carlson et al. 2009).

Prior knowledge can be organized as two forms of knowledge: objective and subjective knowledge (Alba & Hutchinson, 2000). Objective knowledge is defined as what is truly stored in the individuals' memory, which may not be perfectly correlated with how much they think they know. This knowledge depends on the consumer's actual ability to evaluate and use a product (Alba & Hutchinson, 2000). When measuring objective knowledge, researchers might test subjects in a focal topic. Alternatively, when trying to avoid confounds produced by objective knowledge, researchers try to keep it constant to all participants (Brucks, 1985).

Otherwise, subjective knowledge refers to a process in which one scans his memory looking for cues that help evaluating his level of knowledge concerning a certain domain (Park, Monthersbaugh & Feick, 1994). This form of knowledge is built on the information one thinks she stores in her memory (Hadar et al., 2013). It is usually measured with items that ask individuals to report the knowledge they feel they hold about a focal topic (Hadar et al., 2013).

Despite the fact that a number of researchers has used subjective knowledge measures in their studies (Hadar et al. 2013; Moorman et al., 2004; Brucks, 1985), there is some concern about their effectiveness as a proxy for objective knowledge. Particularly, some authors (e.g., Carlson et al. 2009; Brucks, 1985) suggest that there is an influence of individuals' self-confidence on subjective knowledge measures because individuals may overestimate (or underestimate) their knowledge depending on their confidence. However, some critics argue that more often than not self-reported knowledge approximates to actual knowledge (Radecki & Jaccard, 1995). Carlson et al. (2009) demonstrated through a meta-analysis that subjective and objective knowledge are significantly and positively correlated. An important issue for studies that analyze the effect of previous knowledge and the amounts of information sought is knowledge calibration, which reflects the agreement between objective knowledge and self-assessed knowledge (Alba & Hutchinson 2000, Carlson et al. 2009). In light of this discussion, the studies which are presented in this paper adopted both approaches.

The effects of consumers' previous knowledge on information search behavior

Knowledge is a key concept in information processing research (Raju et al., 1995). Information technology access may increase consumers' knowledge because consumers can access a lot of information before purchasing (Dholakia et al., 2013). A traditional research stream has explored the effects of consumers' previous knowledge on the amounts of information sought by consumers (see Hadar et al., 2013; Alba & Hutchinson, 2000; Brucks, 1985) and have found positive as well as negative relationships between these two variables (Hadar et al., 2013; Brucks, 1985; Moore & Lehman, 1980; Newman & Staelin, 1972). On one hand, positive effects occur because individuals with considerably high previous knowledge perceive the processing of new information an easier task (Carlson et al. 2009; Punj & Staelin 1983). Consequently, they may formulate more questions related to the focal domain and search for more information in order to answer their own questions. Furthermore, high levels of knowledge increase the benefits of new information (Brucks, 1985).

On the other hand, researchers who found negative effects justify their results arguing that experienced individuals know more about the attributes of available options. Thus, they do not need to acquire much external information (Moore & Lehmann, 1980). Although, Bettman and Park (1980) explained this apparent contradiction (i.e., the existence of both negative and positive effects) describing the phenomenon as an inverted U-shaped relationship, authors have found significant linear effects on both directions in prior inquiry (Hadar et al., 2013; Sirinivasan & Ratchford, 1991; Brucks, 1985; Kiel & Layton, 1983).

Most studies about information search behavior have explored information search that occurs prior to the final decision (Solon 2014; Hadar et al., 2013; Kim et al., 2008). However, consumers usually revisit their choice and ponder forgone alternatives after having made a purchase and before choice closure (Gu, Botti & Faro, 2013). Thus, consumers still search information after their choice are settled (Shani & Zeelenberg, 2007). Nevertheless, few studies have explored information sought in post-decision timespan. These researches have focused on variables such as cognitive dissonance and feelings of regret/dissatisfaction as predictors of the information search behavior after purchasing (e.g., Shani & Zeelenberg, 2007; Donelly & Ivancevich, 1970; Ehrlich et al. 1957).

For instance, Ehrlich and colleagues (1957) found that in the post-decision timespan, including the post-usage stage, consumers sought information aiming to confirm their choices. The authors argumentatively explained this behavior building on cognitive dissonance theory. Their perspective assumed that consumers sought information after making a decision to minimize their experience of dissonance (Festinger, 1964). In the same way, Donelly and Ivancevich (1970) showed that consumers did not desire to switch their cars when they were presented to information of the cars they had bought during the post-decision timespan. This information reinforced consumers' decision. Finally, Shani and Zeelenberg (2007) showed that feelings of regret or dissatisfaction motivate individuals to either acquire or avoid more information after purchasing. This way, information which is accessed after purchasing may elicit important consequences for both, consumers and companies.

The information sought in post-decision timespan may be predicted by the knowledge consumers have before making a decision as well. When consumers enter into the post-decision phase of their journey, they hold the previous knowledge they have of a product. This knowledge may affect consumers' behavior at post-decision phase. This way, we propose that the knowledge individuals hold before making a decision may elicit effects on the amount of information sought after their final choice.

Given the absence of references for inferences about the relationship between knowledge and post-decision information sought and considering that prior research on the relationship between previous knowledge and pre-purchase information search leads to ambiguous conclusions (i.e., leads to both, positive and negative effects of knowledge on

information search behavior), we propose two competing hypotheses which are addressed in study 1:

H1: The knowledge consumers hold before making their final decision will increase the amount of information sought by these consumers in post-decision timespan.

H2: The knowledge consumers hold before making their final decision will decrease the amount of information sought by these consumers in post-decision timespan.

Study 1: The game study and the competing effects

The main purpose of this study was to start addressing the main-effect. For this, we carried out a single factor experiment with data collected on Amazon Mechanical Turk. We manipulated objective prior knowledge to have more control of participants' previous knowledge. As subjective knowledge may be affected by individuals' self-confidence (Hadar et al., 2013) and we investigated two competing hypothesis, manipulating objective knowledge might minimize the effect of other variables on participants' previous knowledge.

Participants were randomly assigned to one of two conditions (absence vs presence of prior knowledge). Participants were told that during the task they would choose a brain-game which improves reasoning and, as an additional reward for taking part in the study, they would win a password to access the game of their choice (and no other games) on a brain-games website for free access during an entire month. All available options were games developed to improve reasoning and memory: Towers of Hanoi, Rotation Game, and Logic Puzzles.

This deception served as a motivation for the game-choosing component of the experiment. As we manipulated objective knowledge in this study, we opted to present unusual games to avoid confounds due to participants understanding of the games before taking part on the study. For this reasons, popular games, such as crosswords, were not among available options. While being presented to the list of games to choose from, the 'absence of previous knowledge' group received only the names of the games and no other information about them, whereas the 'presence of previous knowledge' group received an informative text about each game along with their names and a representative image. It is important to stress that by providing participants with (or with no) information about the games – as opposed to asking participants to report how much they knew about them –, we generated different levels of objective prior knowledge.

After making the decision (i.e., choosing a game for themselves), participants were asked to search online for information about the games from the list as much as they would like to. We measured the time each participant spent searching for information for a proxy of the amount of information sought in post-decision timespan. To make sure participants would search for information related to the game decision during this activity, they needed to paste the URLs they accessed during the activity in an appropriate space.

We control for participants' prior experience with the games (3 items which are presented in the manipulation check section). Also, we control participants' involvement with the decision. To measure involvement we used two items adapted from Mittal (1989) (How important was it to you to make a right choice of this decision? 1 = "*Not at all"*; 7 = "*Extremely important*"; and "In making your selection of this game, how concerned were you about the outcome of your choice? 1 = "*not at all concerned*"; 7 = "*Very much concerned"*), r =.722.

Sample

83 Amazon Mechanical Turk workers were recruited and spent around 14 minutes (average) to complete the task. For controlling the main-effect, we asked participants to report the extent to which they rushed into the information search activity to finish the task quickly (*"I did my online research as fast as I could to get over with this task as quick as possible,"* 1 = "*I strongly disagree*", 7 = "*I strongly agree*"). Individuals who checked "7" to this item were filtered out (seven cases). Moreover, to investigate participants' attention, we included an

attention check item *("How important was this choice for you? Please ignore this question and go to the item below"*). Six participants failed in this attention check and were removed. Thus, 13 participants were eliminated from the analysis. The final sample consisted of 70 MTurk (42 females; M_{age} = 37.56).

Manipulation check

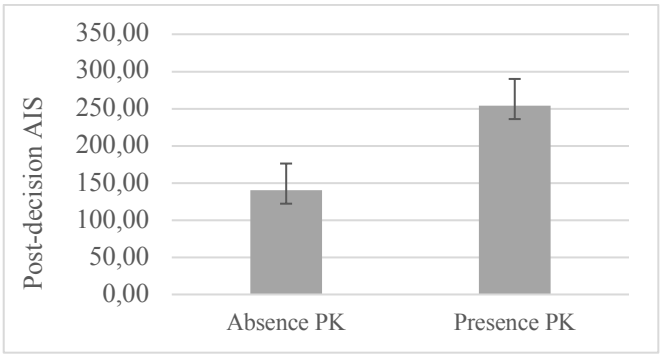
Firstly, as we manipulated objective knowledge, to control for knowledge accumulated before the experiment, participants reported their experience with the game options we presented ("*I am experienced with the game options I was presented*", 1 = *strongly disagree*; 7 = *strongly agree*). As expected, participants' prior experience with the games was low (M = 3.09, SD = 1.631) and significantly below the midpoint of the scale, $t(69) = 4.69$, $p < .001$. Additionally, participants reported their experience with the game they chose ("*I am experienced with the game I chose*", 1 = *strongly disagree*; 7 = *strongly agree*). Participants did not have much experience with the game they chose (M = 2.96, SD = 1.876), with the mean for this measure being significantly below the midpoint of the scale as well, $t(69) = 4.65$, $p < .001$.

The manipulation check was measured with a single item *("The information about the games provided to make my game choice was sufficient to make a decision", 1 = "I strongly disagree"; 7 = "I strongly disagree"*). We expected participants allocated in the 'absence of previous knowledge' group to report lower levels of perceived information sufficiency. Participants in the 'absence of previous knowledge' group indeed reported having a greater sensation of information insufficiency while making the game choice (*N = 34, M = 4.53, SD = 1.813*) than participants in the 'presence of previous knowledge' group (*N = 36, M = 5.50, SD = 1.648*), *t (66) = -2.340, p<.05*. We also conducted an ANCOVA to test if the effect of the experimental condition would hold when controlling for prior experience with the games of the list and prior experience with the chosen game. The effect of the experimental condition remained significant whereas the potential covariates did not affect information sufficiency (experience with the games in the list, F (1, 66) = .506*, n.s;* and experience with the chosen game, F (1, 66) = .711*, n.s*).

Results

To investigate the main effect, an independent sample t-test was conducted. Individuals assigned to the 'presence of previous knowledge' group (*M = 253.907 seconds, SD = 107.108 seconds*) spent more time searching for information than individuals assigned to the 'absence of previous knowledge group' (*M = 140.106 seconds, SD = 235.200*), t (68) = 2.579, $p < .05$, d = .62 (see figure 1). A complementary ANCOVA showed that the effect is resilient to controlling for participants' experience with the game. More specifically, the item in which participants reported their experience with the options available was nonsignificant, F (1, 66) = .326*, n.s* as well as the item in which they reported their experience with the chosen game, F (1, 66) = .013*, n.s*. An ANCOVA also tested the influence of involvement, which did not exert any effect, F (1, 67) = .013, *n.s*.

Figure 1 - Graphic bar with means per condition (absence and presence of Previous Knowledge (PK))



Errors bars represent ±1 SEM

Discussion

The results suggest that even after a final decision was made (and could not be changed), participants exposed to previous knowledge – indicated by the presence of product information provided by the experimenter – dedicated more time to search for additional information after making their decision than individuals who were not exposed to previous knowledge. The positive relationship between previous knowledge and the amount of information sought might occurs because individuals with knowledge about the focal domain can formulate more questions about a topic and can process new information employing less effort to do so (Brucks, 1985). In sum, the study presented evidences that the more knowledge the decision-maker holds, the more information she/he will search, even after the choice had been made and cannot be withdrawn.

Although, it is important to account that the present study was conducted in a somewhat unrealistic setting, wherein participants made a decision about something they had not experience desire for during a relevant, enduring timespan prior to the context of the choice. This contrasts to settings wherein people purchase something that involved planning. Therefore, investigating the effect in a more realistic setting is important to validate the findings of Study 1. To address this, we conducted studies 2 asking participants to recall a real purchase.

Besides, cognitive dissonance arises in specific situations, such as when individuals are responsible for their decisions and when a decision is important to them (Oliver, 2014), and may explain post-decision information search to some extent. In Study 1, although individuals were responsible for their choices, accounting for cognitive dissonance effects would be inadequate because individuals made a decision which would not be as much important to them as a real purchase. This may be supported by the low level of personal involvement with the task. In addition, previous studies indicate that personality components might affect the amounts of information sought (as in Grant, Clark & Kyriazis, 2007). More specifically, maximizing tendencies represent a potential moderator of the effect of previous knowledge on the amount of information sought in post-decision timespan. This may occur because maximizers are expected to hold higher standards for external information gathering. Thus, studies 2a and 2b cover the potential effect of cognitive dissonance, satisfaction and maximizing tendencies. In addition, these studies show where consumers look up information in post-decision timespan.

The roles of maximizing tendencies, cognitive dissonance, and dissatisfaction

Maximizing tendency can be explained through the following anecdote: imagine that you are in the supermarket and want to buy a bottle of wine. As you arrive at the wine isle, you see several options of bottles. You read wine descriptions and spend a long time trying to figure out which one is the best option in the isle to take home. If you are the kind of person that would

go through this (i.e., give yourself the job of figuring out the best option, even if it means putting extraordinary effort into it), you may be a maximizer (i.e., someone who wants to maximize her/his choice), at least when it comes to buying wine. Conversely, individuals who settle with a "good enough" type of wine easily are called satisficers. Simon (1956) was the first researcher to introduce the difference between maximizing and satisficing as choice-making strategies. Although the limited information-processing capacities of individuals make perfect maximization impossible (Simon 1956), studies have shown that some individuals have higher maximizing tendencies than others have (Luan & Li, 2017; Iyengar, Wells, & Schwartz, 2006).

Generally, maximizers seem to be more engaged with the decisions they make (Schwartz et al., 2002). More than satisficers, they exhaustively engage in gathering great amounts of information in decision-making process because they want to choose the best option (Iyengar, Wells, & Schwartz, 2006). Some people may experience maximizing tendencies in specific situations, such as in high involvement contexts. However, maximization is largely understood as an individual trait that plays out regardless of the situation – i.e., at most non-automatic decision-making situations in life (Iyengar, Wells & Schwartz, 2006). So, we assert that maximizing tendencies influence the effect of previous knowledge on amount of information search. Assuming the positive relationship between previous knowledge and amounts of information sought (study 1) and predicting a positive relationship between maximization and need for more information as well, it is plausible to infer that maximizers are more likely to use their prior knowledge to its full extent as a base for information search. In essence, we propose that the effect of previous knowledge is intensified, or facilitated, by the "natural" search behavior of maximizers. In contrast, satisficers have well pre-defined parameters to judge when an option is satisfactory or not before making the final decision (Iyengar, Wells & Schwartz, 2006). When they find an option that fits within these parameters, they cease the search and assume that the benefit of further investing in maximizing their choice does not pay off (Iyengar, Wells & Schwartz, 2006). Therefore, the more 'satisficer' the individual, the weaker the positive relationship between previous knowledge and post-decision information seeking.

Possibly, for very high levels of satisficing (i.e., low levels of maximizing) tendencies, previous knowledge may decrease the amounts of post-decision information sought – instead of increasing it. This would suggest that the more satisficers know before making their final decision, the more assured they are that they made a choice that fits with their parameters and that gathering more information won't benefit their consumption experience:

H3: The effect of consumers' previous knowledge on the amount of information search in post-decision timespan will be stronger for maximizers than for satisficers.

Furthermore, cognitive dissonance and satisfaction are addressed like covariates in Study 2 because this study was conducted with real purchases. Firstly, authors have stated that during post-decision timespan, cognitive dissonance arises when individuals realize that the reality is different of their expectations (Sweeney et al., 2002). Additionally, the importance of the decision is a key factor to the existence of cognitive dissonance (Sweeney et al., 2002). Because in Study 1 individuals did not experience the chosen game after their decision and the decision they had made was not very important for them, cognitive dissonance was not addressed.

Although authors have suggested that cognitive dissonance affects post-decision information search (Sweeney et al 2002; Festinger 1964; Ehrilch et al. 1956), to the best of our knowledge, a relationship involving information search has never been tested with any measure of dissonance. Festinger (1964) argues that post-decision information search can help individuals minimize/eliminate their cognitive dissonance, but the claim remained grounded on deduction rather than observations. Ehrlich et al. (1956) investigated if owners of a new car seek greater exposure to ads of the car they just bought than to ads promoting other cars.

Additionally, they compared owners of a new car to owners of an old car. They found that car owners generally search for advertising of the car they already own, and suggested that seeking advertisement exposure arises because of the emergence of cognitive dissonance at the early stages of the consumption experience. For consumers who bought their car long ago, this dissonance should be in a much more attenuated level. However, they did not effectively measure this dissonance. Besides, there was no difference in search behavior between recent buyers and old buyers, which might indicate that there are other possible explanations for advertisement exposure seeking, as the authors themselves recognized (Ehrilich et al. 1956). Montgomery and Barnes (1993) and Sweeney et al. (2002) present a first attempt to create a scale to measure cognitive dissonance, but they did not investigate the effect of cognitive dissonance on amount of information sought in post decision timespan.

Secondly, dissatisfaction can increase post-decision information search because it has a strong relationship with regret (Shani & Zeelenberg, 2007; Oliver, 2014). Additionally, dissatisfaction occurs when consumers expectation differs from their actually experience with goods or a service for example. This way, we did not address satisfaction in Study 1, because in Study 1 consumers were not in a real context, which they have had the opportunity to experience their decisions.

Additionally, as in Study 1 we manipulated the objective previous knowledge, now we measure the subjective previous knowledge to investigate if the effect we found in Study 1 occurs when consumers report the knowledge they think they have before purchasing a product. Finally, in Study 2, we show where consumers search information in post-decision timespan.

Study 2: the correlational study with real purchases

For this study, 160 workers from Amazon Mechanical Turk were recruited and spent, on average, around 11 minutes to complete the task. Participants were instructed to think of a recent, planned purchase they made and complete a survey about it. Eight cases were excluded from the sample for not following the instructions regarding the purchase they should think of during the task. These cases were participants who thought of an everyday purchase (e.g., milk, bread) or products meant for others to use (e.g., "a book for my brother"). I also filtered out participants who failed on the attention check (47 cases). No one guessed the purpose of the study. Thus, 55 cases were removed and the final sample consisted of 105 MTurk workers (65 females; M_{age} = 36.96).

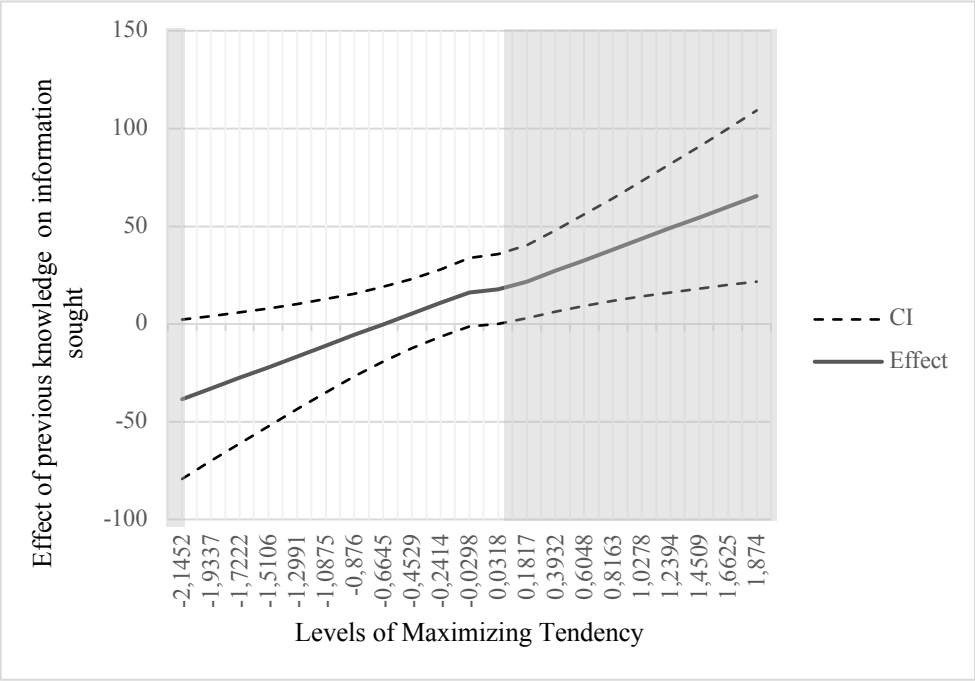
Following previous studies (e.g., Hadar et al. 2013), a single item measured consumers' subjective previous knowledge (i.e., "*I had a lot of knowledge about this purchase before making my final decision*", 1 = *strongly disagree*; 7 = *strongly agree*). To measure the amount of information sought after participants made the purchase, they indicated on a slider scale how intensely (0 = *I did not use this approach*; 100 = *I used this approach very intensely*) they used different information access strategies listed on the survey (e.g., browsing websites, comparing the purchased option to equivalent choices by other consumers, talking to friends/relatives) to find information about their purchase. The sum of scores participants assigned to the items on the list served as our measure for information sought after the purchase. Maximizing tendencies was measured with thirteen items from Schwartz et al. (2002) (1 = "*I strongly disagree*; 7 = "*I strongly agree", α* = .737). To measure participants' cognitive dissonance after the final decision, we used 21 items from Sweeney et al. (2000) (1 = *"I strongly disagree"*; 7 = "*I strongly agree", α* = .972) and satisfaction with the purchase was measured with 4 items adapted from Oliver (2014) (1 = "*I strongly disagree"*; 7 = "*I strongly agree", α* = .960).

A correlation analysis to test a relationship between satisfaction and the amount of information sought showed a null relationship (*r = .068, n.s*).

The hierarchical multiple regression analysis revealed that previous knowledge alone does not contribute significantly for the model, F (1,103) = 2.577*, n.s,* and accounted for 2.4%

of the variation in the amount of information sought in post-decision timespan. Introducing the maximizing tendencies and the interaction term explained an additional 11.7% of variation in the amount of information sough and the change in R^2 was statistically significant, F (2,101) = 6.856 p <.01. Finally, the introduction of cognitive dissonance explained an additional 7.1% of variation and the change was significant, F (1,100) = 9.014, p < .01. Results of the hierarchical regression indicated that the model (previous knowledge, maximizing tendencies, previous knowledge*maximizing tendencies, and cognitive dissonance as predictors of the amount of information sought) is significant, F (4,100) = 6.728, p < .001, and explains 21.2% of the dependent variable. The regression analysis of this model revealed a positive effect of previous knowledge with moderate significance (β = 16.982, t = 2.044, p = .0591). The effect of maximizing tendencies was statistically nonsignificant (β = 25.608, t = 1.509, *n.s*). More importantly, the proposed interaction (previous knowledge*maximizing tendencies) had a statistically significant effect on the amount of information sought (β = 25.862, t = 2.635, p < .01). To estimate the effects of previous knowledge according to maximizing tendencies values, a floodlight analysis using the Johnson-Neyman technique was carried out (Spiller et al., 2013). We used model 1 in PROCESS (Hayes, 2013) for this procedure. For high levels of maximization (maximizing tendencies >.032, mean centered) effects of previous knowledge were positive and increasing as a function of maximizing tendencies (see figure 3). Conversely, worth noticing, negative effects of previous knowledge on the amount of information sought in post-decision timespan achieved moderate levels of significance at the lowest levels of maximization – i.e., individuals called satisficers (maximizing tendencies < -1.934, mean centered).

Figure 3 – Floodlight graphic: the effect of previous knowledge*maximizing tendencies on the amount of information sought

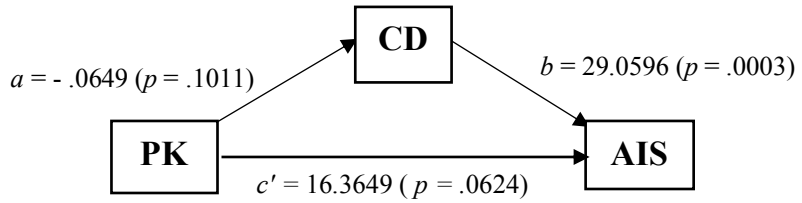


Note: Confidence Interval (CI) bands represent the "range" for 95% CI.
*The grey area represents the significance zone

Furthermore, as the model with three predictors (plus the interaction) shows a positive but marginal effect of previous knowledge (β = 16.982, t = 2.044, p = .0591) and a significant

effect of cognitive dissonance ($\beta = 25.231$, $t = 3.300$, $p < .01$), we ran a mediation analysis using PROCESS (model 4) to verify if an indirect effect of previous knowledge would emerge with the cognitive dissonance. Previous knowledge (PK) served as the independent variable, cognitive dissonance (CD) as the mediator, and the amount of information sought in post-decision timespan (AIS) as the dependent variable (see figure 2).

Figure 2 - Statistical model of mediation analysis



The indirect effect did not emerge, $a*b = -1.8870$, 95% bootstrap CI [-9.4133, 3.4040]. The coefficient for the *c'* path was marginally significant. In view of the new predictor of the amount of information sought in post-decision timespan we propose in this article (which is our focus here), cognitive dissonance may play a role as a covariate in our model.[ii]

Finally, we investigate where consumers look up information in post-purchasing timespan. Consumers reported in a slider scale how intensely they use specific approaches (we shown some approaches to them according to previous research on information search behavior) to search information (where, 0 = *I did not use this approach*; 100 = *I used this approach very intensely*). To acquire information after purchasing a product, consumers usually browse online stores (M = 41.89); talk to friends/relatives (M = 36.00); read online reviews (M = 33.31); visit brick-and-mortar stores (M = 32.43); compare the purchased option to equivalent choices of other consumers (M = 29.57); attend to product information on social media (M = 18.00); browse shopping windows (M = 14.51); and click on online ads that are related to the chosen product (M = 10.19). Besides, participants could write other approaches they use to search information in the post-decision phase. Some participants reported that they do not use other approach. However, some participants reported that they use Google to search more information about the purchased product, they see blogs and browse Instagram.

Discussion

Our findings on Study 2 showed a positive and moderately significant effect of previous knowledge on the amount of information sought in post-decision timespan when there are other variables in the model. Furthermore, the proposed interaction was supported and the floodlight analysis shows when the main-effect changes its sign. For satisficers, the effects of previous knowledge and amount of information sought may be negative by yielding marginally significant effects at the lowest levels of maximization. This could mean that the post-experience information search is reduced for participants with low maximizing tendency and high previous knowledge. Satisficers have specific pre-defined parameters that help them search for information and make a decision with ease and lower levels of uncertainty (Ma & Roese, 2014). Thus, when they find an option that conforms to their parameters, they settle for it and are unlikely to engage in post-decision behaviors – as opposed to what maximizers do (Ma & Roese, 2014). To the extend that satisficers hold knowledge about product they bought, they are unlikely to feel they need to search for more information about it. Because of this, a potential negative effect of previous knowledge on amount of information sought should not be rejected. It is important to stress that in occasions where consumers are more involved with a specific product/service, they may be more maximizers (Ma & Roese, 2014). This way, in these occasions, if these consumers have more previous knowledge about a focal product/service, they will search more information about it in post-decision timespan. In the second study, we

do not investigate consumers' involvement because we wanted to address variables like cognitive dissonance, satisfaction and maximizing tendencies.

Furthermore, cognitive dissonance acts as an important factor because it significantly increased the capacity of explanation of the amount of information sought in post-purchase timespan. It is in tune with previous studies (Ehrilich et al., 1956; Sweeney et al., 2002). Nevertheless, these studies have not investigated the effect of cognitive dissonance empirically. Thus, we contribute to initial understandings about the real effects of cognitive dissonance on the amount of information consumers sought in post-purchase timespan.

Satisfaction did not have any effect on the amount of information sought in post-purchase timespan. It is important to note that we did not measure feelings of regret, which may increase or decrease information search behavior (Shani & Zeleenberg, 2007). We used a scale to measure satisfaction, which may be an indicator of individuals' feelings of regret, but it is not a measurement of it. Thus, in future studies, we suggest the investigation of feelings of regret, using an appropriate scale to measure this variable and its effect on the relationship between previous knowledge and the amount of information sought in post-decision timespan.

Finally, as we could not find an explicative mechanism of the main effect we investigated across two studies, we conducted an exploratory investigation with six consumers to understanding their motivations to search information in post-purchase timespan. These consumers were recruited through social media and were selected because they had made a recent planned purchase, had previous knowledge about the purchased product, and had searched information in post-purchase timespan. Some of these consumers were personally interviewed while others answered a questionnaire, which was sent through email, with few open questions about their purchase and motivation to search information at the post-purchase stage. These consumers did not have time to be personally interviewed.

In general, interviewees look up information after purchasing because they want to confirm their choice, which is in tune with cognitive dissonance literature (e.g. Jones, 2002) and with part of our findings in Study 2 (see the effect of the cognitive dissonance variable). Besides, they search information because they want to learn more about a specific product. According to interviewees, searching to learn is common for technological products like smartphones, laptops, etc. Consumers pointed out that when they buy products that they cannot learn new things about it to improve products' function (or their capability to use the product) they do not search more information in post-purchase timespan. Furthermore, when they know that they cannot easily change the product, like customized furniture, they do not search information as well. This briefly exploratory investigation may help us to have some insights about consumers' motivations for searching information in post-purchase timespan. As the second study shows, cognitive dissonance is an important variable in post-purchase search of information. However, the interviewees show that other variables like the desire for learning may explain why consumers look up information in post-purchase timespan. Moreover, learning may be an explicative mechanism of the main-effect we presented in Study 1 and Study 2 because knowledgeable consumers may easily formulate more questions (Brucks, 1985) which may increase their desire for learning about these new questions. Consequently, they may search more information in post-decision/purchase timespan.

Managerial implications

This paper has some implications mainly for retailers. Firstly, we investigate one of the effects of consumers' previous knowledge on consumers' behavior (i.e., the effect of pervious knowledge on the amount of information sought in post-decision timespan). This may be a concern for many retailers because, nowadays, when consumers visit stores they often have more knowledge about a specific product than the sales person does, for example. In addition, these consumers usually engage in showrooming inside retailing stores or in webrooming.

Thus, they are accessing more information and, consequently, getting more knowledge about the products they want (Gensler, Neslin & Verhoef, 2017). We show that knowledgeable consumers will search more information about their purchased product in post-decision (and post-purchase) timespan. Thus, it is time to retailers pay more attention to the post-purchase phase of consumers' journey (Brega, 2018). If consumers search more information in post-purchase timespan, retailers should help consumers in this task. For instance, retailers can give to consumers more information about themselves and their facilities/opportunities and the purchased product few days after the purchasing moment. Nevertheless, consumers may not be interested in all type of information. Consumers may not want to receive retailers' new offers or promotions for example. As the exploratory investigation indicated, consumers may be more interested in information about the purchased product mainly if they could learn more about it and about their decision. Also, retailers can promote goods which may help consumers to use the purchased product.

Consumers can access more information while they prepare for a decision-making as easy as lifting a finger, because of the advent of internet and gadgets (Sparrow et al., 2011), which may boost their capacity of accumulating knowledge to make decisions in marketplace (Dholakia et al., 2013). If consumers may hold more product knowledge and this knowledge can motivate post-purchase information search, marketers should be prepared to provide additional information. The importance of additional information provided in post-decision timespan is evidenced by Donelly and Ivancevich (1970), who demonstrated that post-purchase reinforcement (e.g., providing additional information in post-decision timespan) diminishes back-out behaviors. Furthermore, the information consumers find after a choice may serve as a calibrating element for consumers' judgements, and these judgments may exert further influence on variables that are important for marketing performance, such as satisfaction and repurchase intentions (Shani & Zeelenberg, 2007). Besides, if retailers provide consumers with more information in post-purchase timespan, they will have more control of information consumers are accessing.

In addition, the second study shows the approaches consumers use when they look up information in post-purchase phase. Browsing online stores, talking to friends/relatives, reading online reviews and visiting brick-and-mortar are the main approaches used by consumers. Interesting, despite the fact that nowadays consumers can easily access the internet to look up information in post-purchase timespan, visiting brick-and-mortar was one of the most used approaches. Thus, improving consumers' experience in retailing settings may be a good idea because, as our research shows, consumers may visit stores to look up information even in the post-purchase phase. If in this new visit to the retailer consumers have good "store experiences", they might buy new products, be more satisfied and loyal to the retailer. Additionally, if retailers know where consumers search information, they can choose the best approach to reinforce consumers' decision and, consequently, diminishing back-out behaviors (Donelly & Ivancevich, 1970) and consumers' feelings of regret (Shani & Zeelenberg, 2007). Retailers can use the most used approaches to inform their consumers about the purchased product, other related products (which may interest consumers), and about themselves. This may increase consumers' satisfaction and loyalty.

Conclusion

The present study examines the effect of consumers' previous knowledge on the amount of information sought in post-decision (Study 1) and post-purchase (Study 2) timespan. Study 1 shows that individuals holding objective knowledge before making their final choice (vs. individuals holding no such knowledge) search for more information related to the available options after they made their final decision and could not change it anymore. More specifically,

we manipulated objective prior knowledge, which is a paradigm that deserves more emphasis since most empirical works use evidence of subjective knowledge (Brucks 1985, Carlson et al. 2009). Study 2 reinforces the findings of Study 1 with a new type of consumers' previous knowledge (i.e., subjective knowledge) and explores the moderation effect of maximizing tendencies. This study shows that in non-controlled settings, previous knowledge has a nonsignificant effect without the introduction of additional predictors (i.e., maximizing tendencies and cognitive dissonance). Additionally, the results showed an interaction wherein maximizers are more likely to search for more information after making their final choice as a function of their previous knowledge than satisficers. Negative effects of previous knowledge with moderate levels of significance were considerably salient among individuals at the lowest levels of maximization tendencies (i.e., satisficers). It is possible that under certain circumstances, this negative effect becomes stronger. However, no claim about the existence of this effect can be drawn based on the current findings. In Study 2, we also show where consumers look up information after making a purchase. Thus, this research contributes to literature on consumers' maximizing behaviors. A few studies have investigated this trait in post-decision settings (e.g., Iyengar, Wells & Schwartz, 2006; Ma & Roese, 2014), but studies addressing how maximizing tendencies affect post-decision information seeking seem to be absent in prior literature.

Finally, we present an exploratory investigation where we interviewed six consumers to understand why they search information in post-decision/purchase timespan. Consumers have mentioned the reinforcement of their decisions and learning about a product as the main reason for the search of information. The later happens when consumers know that they can learn more about a product. When consumers know that they cannot change the product easily, they usually do not search more information in post-decision/purchase phase. These findings may help future studies to explore the main-effect we presented in this paper.

Although previous studies point out that experiences of cognitive dissonance and feelings of regret or dissatisfaction (Ehrilch et al., 1957; Bettman et al., 1990; Shani & Zeelenberg, 2007) are the main predictor of the information search behavior in the post-decision (and post-purchase) timespan, the studies reported here demonstrated that this view is incomplete. Information search behavior in post-decision/purchase timespan may have different predictors, such as the predictors we investigated in this research (i.e., previous knowledge and maximizing tendencies). From a broader point of view, this research amplifies the understanding of consumers' post-decision experiences. Enhancing the understanding of these experiences may reveal a great deal of consumers' actions toward brands and products, but marketing literature often does not extends its focus from satisfaction, repurchase intention and service failures topics when addressing post-decision/purchase experiences (Oliver, 2014; Bach & Kim, 2012; Wirtz & Mattila, 2007; Bechwati & Xia, 2003).

Therefore, this paper shed new lights on an important phase of consumers' journey because it investigate the effects of a "new" phenomenon (i.e., the increasing of knowledge about products/services among consumers) on consumers' behavior in post-decision/purchase timespan (i.e., the information search behavior). Additionally, we studied consumers' behavior in post-decision/purchase timespan in view of a variable which is settled in pre-decision/purchase timespan. This is in tune with Lemon & Verhoef (2016)'s recommendation about the study of consumers' journey.

This study is not without limitations. Firstly, we do not explore the effects of the information participants sought on their satisfaction with the decision, their repurchase intentions, their hedonic adaptation or even their knowledge about the purchased product after the "new" search of information. Future studies should address these variables because they may represent important effects of the information search behavior in post-decision/purchase phase. Moreover, we conducted two studies with North American consumers. However, the

exploratory investigation was conducted with Brazilians. This way, future studies may investigate the effects we reported using different samples.

Finally, we hope that this paper helps both, researchers and retailers/companies, to better understand consumers' behavior in the digital age. Most importantly, we call attention to an overlooked topic which deserves more attention.

References

Alba, J. W. (1983). The effects of product knowledge on the comprehension, retention, and evaluation of product information. In: Bagozzi, R. P.; Tybout, A. M.; Arbor, A., Ed(s). Advances of Consumer Research, MI: Association for Consumer Research, 577-580.

Bach, S. B., & Kim, S. (2012). Online consumer complaint behaviors: The dynamics of service failures, consumers' word of mouth, and organization-consumer relationships. *International Journal of Strategic Communication*, *6*(1), 59-76.

Bechwati, N. N., & Xia, L. (2003). Do computers sweat? The impact of perceived effort of online decision aids on consumers' satisfaction with the decision process. *Journal of Consumer Psychology*, *13*(2), 139-148.

Bettman, J. R, and Park, C. W. (1980). Effects of prior knowledge and experience and phase of the choice process on consumer decision processes: a protocol analysis. *Journal of Consumer Research***,** 7, 234-248.

Bettman, J. R, Luce, M. F., and Payne, J. W. (1998). Constructive consumer choice processes. *Journal of Consumer Research*, 25, 187-217.

Bloch, P. H, Sherrell, D. L., Ridgway, N. M. (1986). Consumer search: an extended Framework. *Journal of Consumer Research*, 119-126.

Brucks, M. (1985). The effects of product class knowledge on information search behavior. *Journal of Consumer Research*, 12, 1-16.

Carlson, J. P., Vincent, L. H., Hardesty, D. M., & Bearden, W. O. (2009). Objective and subjective knowledge relationships: a quantitative analysis of consumer research findings. *Journal of Consumer Research*, 35, 864-876.

Dholakia, N., Zwick, D., & Denegri-Knott, J. (2013), Technology, consumers and marketing theory. In: Maclaran, Saren, Stern, & Tadajewski. The Sage Handbook of Marketing Theory. London: Sage.

Donelly, J. H., & Ivancevich, J. M. (1970). Post-Purchase Reinforcement and Back-Out Behavior. *Journal of Marketing Research*, 7, 399-400.

Festinger, L. (1964), Cognitive Dissonance, *Scientific American*, 207, 93-102.

Gensler, S., Neslin, S. A., & Verhoef, P.C. (2017). The showrooming phenomenon: it's more than just about price. *Journal of Interactive Marketing*, 38, 29-43.

Grant, R.,Clark, R. J., Kyriazis, E. (2007). A review of factors affecting online consumers search behavior from an information value perspective. *Journal of Marketing Management*, 23, 519-533.

Hadar, L., Sood, S., & Fox, C. R. (2013). Subjective knowledge in consumer financial decisions. *Journal of Marketing Research*, *50*(3), 303-316.

Hayes, Andrew. (2013). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. The Guilford Press New York.

Hennig-Thurau, T., Gwinner, K. P., Walsh, G., & Gremler, D. 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.

Iyengar, S. S, Wells, R. E., & Schwartz, B. (2006). Doing Better But Feeling Worse. *Psychological Science*, 17, 143-150.

Jones, E. H. (2002). A Cognitive Dissonance Theory Perspective on Persuasion. In: Dillard, J.; Pfau M., Ed(s). *The persuasion handbook*: Developments in theory and practice. CA: SAGE Publications, 99-117.

Kiel, G. C., and Layton, R. A. (1981). Dimensions of consumer information seeking. *Journal of Marketing Research*, 18, 233-239.

Lee, H. H., & Kim, J. (2008). The effects of shopping orientations on consumers' satisfaction with product search and purchases in a multi-channel environment. *Journal of Fashion Marketing and Management: An International Journal*, 12(2), 193-216.

Lemon, K.N., & Verhoef, P. C. (2016), Understanding customer experience throughout the customer journey, *Journal of Marketing*. 80(6), 69-96.
Luan, M., & Li, H, (2017), Maximization Paradox: Result of Believing in an Objective Best. *Personality and Social Psychology Bulletin*, 43(5), 652-661.
Ma, J., & Roese, N. J. (2014). The maximizing mind-set, *Journal of Consumer Research*, 41, 71-92.
Mehra, A., Kumar, S., & Raju, J. S. (2017). Competitive Strategies for Brick-and-Mortar Stores to Counter "Showrooming". *Management Science*.
Montgomery, C., & Barnes, J. H. (1993). POSTDIS: A Short Rating Scale for Measuring Postpurchase Dissonance. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, 6, 204-216, 1993.
Newman, J. W., & Staelin, R. (1972). Pre-purchase information seeking for new cars and major household appliances. *Journal of Marketing Research*, 9, 249-257.
Oliver, R. L. (2014). *Satisfaction:* A Behavioral Perspective on the Consumer. New York: Routledge, e-book.
Park, C. W., Monthersbaugh, D. L., & Feick, L. (1994). Consumer knowledge assessment. *Journal of Consumer Research,* 21(1), 71-82.
Richins, M. L. (1983). Negative word-of-mouth by dissatisfied consumers: A pilot study. *The journal of marketing*, 68-78.
Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: happiness is a matter of choice. *Journal of personality and social psychology*, *83*(5), 1178.
Shani, Y., & Zeelenberg, M. (2007). When and Why Do We Want to Know? Experienced Regret Promotes Post-Decision Information Search. *Journal of Behavioral Decision Making*, 20(3), 207-222.
Solomon, M. R. (2014). Consumer behavior: Buying, having, and being. Engelwood Cliffs, NJ: Prentice Hall.
Sparrow, B., Liu, J., & Wegner, D. M. (2011). Google effects on memory: Cognitive consequences of having information at our fingertips. *Science*, *333*(6043), 776-778.
Spiller, S. A., Fitzsimos, G. J., Lynch, JR., & McClelland, G. H. (2013). Spotlights, Floodlights, and the Magic Number Zero: Simple Effects Tests in Moderated Regression. *Journal of Marketing Research*, L, 277-288.
Sweeney, J. C., Hausknecht, D., & Soutar; G. N. (2000). Cognitive Dissonance after Purchase: A Multidimensional Scale. *Psychology and Marketing*, 17, 369-385.
Wirtz, J., Mattila, A. S., & Tan, R. L. (2007). The role of arousal congruency in influencing consumers' satisfaction evaluations and in-store behaviors. *International Journal of Service Industry Management*, *18*(1), 6-24.

[i] "Investir em awareness é sempre o melhor caminho?", retrieved from "Blog Made in Brazil" on McKinsey&Company Brasil online page.

[ii] We also ran an analysis with PROCESS (model 8) to investigate the moderation effect of maximizing tendencies on path *a* (previous knowledge → cognitive dissonance) but the moderation effect was nonsignificant.