

**UNIVERSITE DE DROIT, D'ECONOMIE ET DES SCIENCES D'AIX MARSEILLE  
AIX MARSEILLE UNIVERSITE  
INSTITUT D'ADMINISTRATION DES ENTREPRISES**

**CENTRE D'ETUDES ET DE RECHERCHE  
EN GESTION D'AIX MARSEILLE**

**THE IMPACT  
OF RETRIEVAL DIFFICULTY  
ON SATIATION**

***Richard HUAMAN-RAMIREZ\****  
***Nada MAANINOU\*\****

**W.P. n° 957**

**October 2015**

*\*Etudiant en Doctorat Sciences de Gestion, AMGSM-IAE Aix, CERGAM (EA 4225), Aix Marseille Université,  
Clos Guiot, Chemin de la Quille, CS 30063, 13540 PUYRICARD Cedex, France*

*\*Etudiante en Doctorat Sciences de Gestion, AMGSM-IAE Aix, CERGAM (EA 4225), Aix Marseille Université,  
Clos Guiot, Chemin de la Quille, CS 30063, 13540 PUYRICARD Cedex, France*

Toute reproduction interdite

L'institut n'entend donner aucune approbation, ni improbation aux opinions émises dans ces publications : ces opinions doivent être considérées comme propres à leurs auteurs.

Institut d'Administration des Entreprises, Clos Guiot, Puyricard, CS 30063  
13089 Aix-en-Provence Cedex 2, France  
Tel. : 04 42 28 08 08.- Fax : 04 42 28 08 00

## **THE IMPACT OF RETRIEVAL DIFFICULTY ON SATIATION**

### **ABSTRACT**

Satiation plays an important role in consumption. Over time, an individual will eventually get fed up by a product that has satisfied him or her before. Our work has a psychological view of satiation, which is based on the premise that satiation is not determined by past consumptions but is constructed. Our work focuses on the cognitive process of preferences construction including the inferences about fluency of retrieval. We showed that in the case of difficulty of retrieval, the consumer can effectively infer that he or she has not consumed a lot of a particular product. This perception of reduced past consumptions will consequently make the consumer have less feeling of satiation. We conducted an empirical study among 166 students who had responded to our online survey regarding different soft drinks in Peru. Participants who remembered the last three times they consumed their favorite drink expressed more desire to consume the drink again than those who only remembered their last consumption. Moreover, individuals who were informed that the recall task is difficult had no relevant effect on their desire.

**Keyword: Satiation; Ease of retrieval, Inference**

## INTRODUCTION

Satiation refers to the decrease in pleasure provided by an emotionally relevant stimulus (Fredrickson and Loewenstein, 1999). The phenomenon of satiation is often cited as the main obstacle to lasting happiness in society, reason being that, regardless of the degree of satisfaction an individual may get by following a stimulus, the satisfaction tends to decrease with repetition (Brickman and Campbell, 1971; Redden, 2008; Sheldon and Lyubomirsky, 2012). Satiation is one of the reasons why consumers are always seeking variety (Kahn, 1995; McLister and Passemier, 1982). Since there is a dependency between the feeling of satiation and the perception of past consumptions (Helson, 1948, 1964), the recall of such consumptions plays an important role in the satiation process. The consumer relies on his memory while retrieving information for his or her past purchase (Mantonakis et al., 2008).

When an individual is in a buying decision process for a hedonic product (i.e. cookies, drinks, chocolates, etc.), he or she is influenced by an unavoidable satiation phenomenon (Coombs and Avrunin, 1977). However, consumers do not always make the effort to remember and evaluate their past consumptions, especially because such consumptions are often irregular and difficult to describe (Bettman et al., 1998). In these conditions of difficult recall, an individual is more likely to be influenced by the fluency of retrieval of past experiences using inferences (Schwarz et al., 1991). The use of inferences is explained by the fact that people need to perform consistent actions and for this they use a wide variety of implicit theories (personal and social) to form a bond, "if-then ", that combines the objective information to logical conclusions (see , Kardes et al. , 2008). In this way, the fluency of retrieval could have an effect on satiation, in particular during the buying decision process.

Previous research has focused on satiation reduction by categorizing stimulus (Redden, 2008), the decrease in perceived frequency (or recency) of past consumptions (Galak et al. 2013), or the interruption in consumption experience (Nelson and Meyvis, 2008; Nelson et al., 2009). However, researchers have rarely cited satiation as a psychological construct, especially in a consumer decision making process. Among the pioneering research on satiation construction, the seminal work of Wansink and his colleagues (2005) is noteworthy. They demonstrated that the perception of past consumption can be influenced by contextual factors. Moreover, in the consumer behavior research, Galak et al. (2009) showed that satiation also depends on the amount of recalled variety. In their study, when participants were asked to focus on other products they have consumed, they felt a gradual decrease in the satiation. However, in order

to study the bias that may exist while recalling past experiences, only the study by Redden and Galak (2013) has analyzed the use of inferences in satiation construction. These researchers showed that by using meta-cognitive inferences the consumer can build satiation through easy recall of past consumptions. In other words, the more an individual recalls easily his or her past consumption of a particular product, the more he or she will follow meta-cognitive process and deduce that he or she has consumed such a product a lot. Thus, his or her satiation feeling will be depicted by decrease in the pleasure pertaining to the usage of that product.

Besides a large body of research regarding satiation, certain issues still persists in the domain, such as the case of how a consumer advances in a buying decision making situation. For instance, contrary to our literature, Huber (2004) stated that it is unlikely, though, that ease of retrieval affects satiation in a decision making context, as it is difficult to evaluate abstractly a single product among its alternatives without considering the context. Furthermore, he also stated that in a relatively fast decision making context, meta-cognitive based theoretical explanation remains irrelevant. In this sense, in a situation of buying decision some questions stand still unclear. For this reason, the research question that arises hitherto is: what is the effect of recall difficulty of past consumption on the feeling of satiation during a buying decision making context of a hedonistic product?

Based on the theoretical framework of simple accessibility (Menon and Raghurir, 2003) and the divergence-attribution theory (Whittlesea and Williams, 2000), we suggest a different explanation of the satiation building process. We believe that when there is fluency of retrieval, a consumer can automatically use inferences without experiencing a meta-cognitive process. In this way, the fluency of retrieval impacts the perception of past consumptions and therefore the feeling of satiation. The fluency of retrieval is defined as the ease with which some information can be retrieved from memory (Schwarz, 2004). This inference is related to the idea that if there is more information about past experiences it would be easy to retrieve from memory, and the consumer will think that he or she has lived such past experiences more frequently or recently. In other word, "if it is fluid, then it must be old/known" (Jacoby and Dallas, 1981; Schwarz et al., 1991; Tversky and Kahneman, 1973; Whittlesea, 1993). Contrary to fluency of retrieval, in this paper we are concerned about the difficulty of retrieval in a decision making context. We argue that if a consumer is supposed to remember his or her last time of consumption of a particular product, he or she will not use an inference because the ease of recall is expected; however, if a consumer has to remember his or her past

consumptions several times, then he or she will experience a difficulty in inference which would be unexpected.

The theoretical contribution of this research is to demonstrate that difficulty of recall of past consumptions plays a role in the feeling of satiation within a buying decision making context. Our research also extends the previous research as it expands the horizon of the factors that could influence satiation. Furthermore, since research on fluency of retrieval focused mainly on the attribute based evaluation of a product, we are focusing on the memory-based evaluation of a product. At the managerial level, understanding that satiation is not directly determined by past consumptions, rather built in the present, will provide practitioners an opportunity to take advantage of the context. By encouraging difficulty of recall among consumers in order to create a perception that one has consumed a hedonic product less may reduce the effects of satiation. Thereby reducing consumer's feeling of satiation by contextual paths will enable practitioners to invest less in product variety strategies.

## **THEORETICAL FRAMEWORK**

### **SATIATION CONSTRUCTION PROCESS**

The adaptation level theory stipulates that the satisfaction or dissatisfaction of a particular experience is not absolute; rather it is derived by comparing the current experience with the past experiences (Helson, 1948; 1964). Helson's model specifically demonstrates the effect of past stimuli on the subjective experience of a current stimulus. This model captures the essence of the adaptation, i.e. persistent negative elements gradually become less unpleasant whereas persistent positive elements progressively become less pleasant. The evaluation of a repeated past consumption depends on how its repetition is perceived, and the perception of past consumptions from contextual factors will build satiation.

The psychological construction notion has become important in this field of social sciences. Under this perspective, individuals can construct their preferences (Lichtenstein and Slovic, 2006), choices (Bettman, Luce and Payne, 1998) or their social judgments (Martin and Tesser, 1992) by integrating the amount of available information (such as feelings, concepts, procedures or episodic experiences). The need to build judgments generally occurs when they are insufficient to solve an evaluation issue. Such difficult evaluation situations have the following characteristics: (1) some elements of an evaluation are unfamiliar; (2) evaluation may present a conflict of interest or perception; (3) it is difficult to translate our positive and negative feelings (Lichtenstein and Slovic, 2006). In this paper, we are interested in the

second characteristic where the consumer is in a "trade-off" i.e. when he or she must quickly evaluate his past consumptions and the recall is difficult, which is often the case.

Moreover, it is crucial to add that even in a situation when judgments seem to be determined, contextual factors may impact a product evaluation. In other words, in order to build satiation, memory or past consumptions recall is not entirely the main factor; the context also plays a role (Whittlesea, 1997). As mentioned earlier, Wansink et al. (2005) demonstrated that the individuals who took the soup from the self-refilling soup bowls (the biased visual cue), consumed more than those who took it in normal soup bowls. In this case, consumers were influenced by the contextual factors such as the bowl size and the perceptual effect of seeing that they do not eat much. This concept is compatible with the work of Galak et al. (2009) which shows that the satiation also depends on the recalled consumer environment. These authors showed that consumers feel satiation more slowly when asked to remember the context in which they consumed this product. In their study, participants were asked to focus on other products that they have consumed. The conclusion seemed to be that the fact of noticing and remembering the consumption is crucial for satiation, probably because satiation is a function of the past consumption amount which people remember. Thus, the feeling of satiation can be cognitively constructed from the perception of the product past consumptions to which the consumer is exposed.

When the consumer evaluates a product based on past consumptions that are difficult to describe, it will not be based on the objective information of those consumptions, but rather on automatic inferences that will influence the product evaluation.

## **EASE OF RECALL AS INFORMATION**

Consumers do not often analyze the frequency or recency of their past consumption to make a buying decision. They use heuristics, especially when the task of calculating their past consumptions is difficult (Bettman et al., 1998). In this section, we proceed with the explanation of the heuristic, in said situation.

The availability heuristic (Tversky and Kahneman, 1973) is based on the fact that people tend to estimate the frequency of an event based on the availability of this information in their memory. For example, if the information related to a specific incident is not available in the memory of people, they will think that this incident happens very often within the population. On the contrary, the less accessible the information of incidents is, the more people are likely to think that few people were affected. Tversky and Kahneman (1973) suggested that in some

situations, when individuals cannot remember the occurrences of an event, they use different methods to estimate the frequency or recency of that event. For example, in an experiment, individuals thought that there were more English words that begin with the letter K in the first position than in the third one, when in fact it is the opposite (Tversky and Kahneman, 1973 experiment 3). This result explains that the evaluation of the amount of words beginning with the letter K in the first position is influenced by its degree of availability in the memory. Therefore, words beginning with the letter K would be evaluated as more frequent. Despite the large impact of this research in social sciences, the result of this study is ambiguous as it is difficult to know if people thought that because they made more words that started with letter K or because it was really the availability of words in memory. In the next section we detail the contribution of Schwarz et al. (1991) to the ease of retrieval.

In order to unravel the ambivalence in the use of availability heuristic, Schwarz et al. (1991) manipulated the conditions of ease of retrieval. The ease, availability or accessibility of retrieval, are interchangeable terms, they are defined as the ease with which examples or experiences come to mind. Schwarz et al. (1991) suggested a difference in the content of the information that people remember and the subjective experience of ease that can accompany such retrieval. Schwarz and his colleagues, however, were interested in the informational function of the subjective experience of ease. By manipulating the conditions in the ease of retrieval, they showed (experiment 1) that the participants who recalled six examples of assertive behaviors categorized themselves as more assertive than those who recalled twelve examples. Those who remembered six examples have indicated a stronger ease of retrieval than those who provided twelve examples.

In agreement with Tversky and Kahneman (1973), Schwarz et al. (1991) explained this phenomenon that in ease of retrieval, people refer to a higher number of experiences than they have actually engaged in or experienced. This leads to a question: can a person attribute the ease of retrieval to another cause? For example, the ease of retrieval can be attributed to the fact that the task is easy, or that the individual is motivated to do the recall effort. Schwarz et al. (1991) used the misattribution of feelings to remove the impact of the ease of recall on the evaluation of people's assertiveness, by attributing the ease of retrieval to the situational stimuli (i.e. music). They demonstrated (experiment 3) that when people expect the recall task to be easy, the ease of retrieval has no effect on the evaluation of people's assertiveness. Participants recalling six examples of assertive behaviors were assessed as less assertive than those who recalled twelve examples. People attributed the ease of recall to music and not to

the fact of experiencing more assertive behavior. Similarly, when people expect the recall task to be difficult, the recall problem had no effect on the assessment of people's assertiveness. Empirical results demonstrate that the expectation of subjective experience influence the impact of the fluency of retrieval on the evaluation of the amount of behaviors engaged. Similarly, studies have shown the attribution of inferences on the behavior evaluation. Such attributions depend on individual and situational factors. In the next section we present the theory that explains these results more precisely.

### **DIVERGENCE-ATTRIBUTION THEORY**

There are many types of information processing fluency (subjective experiences with which individuals easily process information) that impact the judgment of individuals among a wide range of social dimensions (Alter and Oppenheimer, 2009). However, the variables that determine the allocation of inferences are applied to all types of information processing fluency (Schwarz, 2004). Schwarz et al. (1991) showed that the fluency of processing influences the judgment regardless of the content accompanying the subjective experience of fluency. In this sense, what influences the consideration of fluency recognition of an individual (Jacoby and Whitehouse, 1989) is applicable to the concept of fluency of retrieval.

The recognition of a stimulus by an individual depends on the trace of it in his or her memory; a trace that was left after he or she encountered that stimulus. Proximity with the stimulus will activate its trace in memory; the recognition of a stimulus will be the conscious perception of the resonance of this activated trace. In this sense, the possession of an event's trace in the memory is a necessary and sufficient cause to recognize an object. Despite this logical notion of recognition, Jacoby et al. (1989) showed that one can recognize an object or a person even without having a previous encounter. This phenomenon of a familiarity feeling is explained by the fluency of information processing. The researchers showed that people used fluency heuristics in recognition. People can judge that an object has been seen by assigning fluency of information processing to past experiences with that object. This attribution act is considered unconscious, but the perception of familiarity is felt consciously (Whittlesea and Williams, 1998).

Similar to the availability of heuristic by Tversky and Kahneman (1973) and the fluency of retrieval by Schwarz et al. (1991), there is much evidence regarding the fluency of information processing, such as perceptual fluency (Novemsky et al, 2007), cognitive fluency (Stepper and Strack , 1993) or linguistic fluency (Alter and Oppenheimer, 2006, 2008).



Despite the empirical validity of this evidence in other areas, the idea that we unconsciously assign a heuristic only from a simple information processing fluency further suggests several questions. For example, Whittlesea and Williams (1998) have questioned the fact that there is not a feeling of familiarity when we meet someone known. They wonder why in some cases, even if there is a fluency of processing, the assigning of a heuristic does not occur.

Whittlesea and Williams (1998) have shown that to experience a feeling of familiarity, we must be surprised by our fluency of processing. If the stimulus information is processed fluently in an expected context, this exposure to the stimulus will not produce a feeling of familiarity. In their experiment, individuals were presented by three types of words: the well-known words (i.e. TABLE), non-words difficult to pronounce (i.e. LICTPUB) and non-words easy to pronounce which were created from real words by changing one or more letters (i.e. HENSION). Then, each type of stimulus was studied within a recognition test. During the test, the individuals first pronounced each word (to measure the fluency of processing) and made a recognition decision to see whether the stimulus is considered new or old for them. Natural words (i.e. TABLE) were treated very easily (827ms), but were not associated with old words. In the opposite, the quasi-homophones words (i.e. HENSION), even if they have been treated with less fluency than normal words (988ms), produced more false alarms because they were considered as old words (37% vs 16%).

Whittlesea and Williams (1998) explained this phenomenon in the way that when individuals easily pronounced the non-words, they were surprised and the unknown source was falsely attributed to the past. For example, when people read "HENSION", they were expecting a significant word, but it was a non-word. This surprise was associated with the incompatibility between the expectations and the results that guided this feeling of familiarity. That is, the word "HENSION" was treated in a more fluent way than what is expected for a non-word which created a perception of divergence, followed by an unconscious allocation of the processing fluency heuristic, and finally leading to a feeling of familiarity. In marketing, these results were replicated by Menon and Raghurir (2003) using the ease of retrieval in brand evaluations.

## **EASE OF RECALL AUTOMATICITY**

In this section, we explain how ease of recall heuristics is automatically used. The automaticity is a characteristic of the information processing heuristic approach (Chaiken, 1980). Automatic information processing occurs unconsciously, without control by the

individual, without necessary attention, without any cognitive effort and is involuntary (Bargh, 1989). Several empirical studies highlighted automatic processes in the consumer decision-making field. For example, Kardes (1986) examined the unconscious use of product information by individuals when aware of the information presence, and Janiszewski (1990) examined the use of product information when people were unaware of the information presence. Similarly, research has shown the prevalence of one or more automaticity criteria in the effects of consumers impulsivity (Ramanathan and Menon, 2006; Shiv and Fedorikhin, 1999), the monetary value judgments (Raghubir and Srivastava, 2002), the distance perception (Raghubir and Krishna, 1996), and phonetic effects of brand names on consumer judgments (Yorkston and Menon, 2004).

Taking into account the conditions proposed by Bargh (1989) to accomplish the automatic information processing, Menon and Raghubir (2003) showed the ease of retrieval automaticity through several experiments. First, they demonstrated that the use of the ease of retrieval inference is uncontrollable. For example, individuals in one of their experiment evaluated a computer brand less favorably because of the difficulty in restoring its positive properties, even when they were informed initially that the other participants had found this recall task difficult. This phenomenon is explained by two possible reasons: people are not aware of the ease of retrieval used as an information source to make judgments, or even if people are aware of it, they are unable to control its use. These two reasons are related to automatic processing (Bargh, 1989). Furthermore, Menon and Raghubir (2003) showed that the ease of retrieval inference is used without efforts. When individuals were imposed to a cognitive load before the experience of recall, the ease of retrieval had an impact on the evaluation of the same brand even when they were informed that the other participants found the task of recall easy or difficult. In another experiment, when individuals were informed that the other participants found the task of recall easy or difficult, the ease of recall had an impact on the evaluation of the brand only when cognitive load was imposed on individuals. These two experiments performed by Menon and Raghubir (2003) showed that the ease of recall can be applied without considerable effort. In summary, the ease of recall as an inference is automatically used: without any control or efforts by the individual.

As we have noted earlier, satiation can be constructed from the perception of past consumptions. The more we perceive that we have consumed a product, the more we will feel satiation. The feeling of satiation of an individual toward a product is an assessment based on memory. In this context, when an individual is exposed to a product, he or she does not

evaluate the product's attributes, but its past consumptions. Furthermore, while evaluating its product's past consumptions, he or she is not only influenced by the content of the past consumptions, but also by the ease of retrieval of the stored information in memory.

## **HYPOTHESIS**

When the consumer is making a hedonic product buying decision, the assessment may be based on the information from their memory (Menon, Raghurir and Schwarz, 1995). People often evaluate their past consumptions to make choices. Lack of access to information from their memory, specifically in recalling past experiences, can generate cognitive inferences that individuals use (Schwarz et al., 1991). The individuals unconsciously assign the difficulty of retrieval to the fact they have not experienced that behavior a lot (Whittlesea, 1998; 2000). This assignment will be automatic (Raghurir and Menon, 2003). Consumers would use the inference "if it is fluent, then it is old" (Jacoby and Dallas, 1982; Schwarz et al., 1991; Tversky and Kahneman, 1973; Whittlesea, 1993) to estimate their past consumptions. In the case of a purchase decision making, the difficulty of retrieval of past consumptions could negatively affect these consumptions' perception. Given that the feeling of satiation is built on past consumption perception (Galak et al., 2009; Redden and Galak, 2013; Wansink et al, 2005), the difficulty of retrieval could therefore influence the feeling of satiation. The difficulty of retrieval of past experiences plays an important role in the increase of the desire felt towards the consumption of a product. Based on this argument, we hypothesise:

*The difficulty of retrieval will have a negative effect on the feeling of satiation*

## **METHOD**

One hundred and sixty six university students participated in this experiment (80% males, 20% females; age between 18 and 35 years old). We used an online survey method for data collection. The administration of the questionnaire was carried out using the Sphinx online software ([www.sphinxdecllic.com](http://www.sphinxdecllic.com)). We used a food product with predominantly hedonic characteristics and repeated use. We chose refreshing drinks. The list of drinks presented to respondents contained the most popular soft drinks in Peru, including Coca Cola, Pepsi Cola and local brands.

## **PROCEDURE**

To manipulate the difficulty of recall, we used two conditions: ease of recall and difficulty of recall. We asked the first experimental group: “*Try to remember the last time you consumed this drink*”, the second experimental group was asked to: “*Try to remember the three (3) last times you consumed this drink*”. In order to avoid the influence of emotionally charged past experiences on inferences, we added one question for the first experimental group: “*When was the last time you consumed this drink?*” and three questions for the second and third experimental group: “*When was the (penultimate, pre-penultimate, last) time that you consumed this drink?*” Here, the recall of past consumptions was focused on peripheral information rather than content information (Schwarz, 2004).

We added a third condition, difficulty of recall with attribution, in order to demonstrate the use of inference. A necessary condition to use the inference “it is difficult to recall, then I have not consumed a lot” is related to the idea that there must be a difference between the actual fluency of information processing and the expected one (Whittlesea and Williams, 1998; 2000; 2001a; 2001b). To have the possibility of using inferences, there must be a dissonance between our experience’s expectations and what we are actually experiencing. For this condition, we used the feeling misattribution method (Schwarz, 1991; Schwarz and Clore, 2007) and added the following information under the difficulty of recall condition: “*You know, remembering the three (3) last times you consumed this drink can be quite a difficult task*”. It allowed us to assign the difficulty to the recall task but not to the fact that they have not consumed a lot.

With regard to the manipulation of difficulty of retrieval, we created three questionnaires, each with different conditions. Participants were asked to choose from a list of drinks that they love most, to provide a similar hedonic state. Then, we measured the participants’ satiation feeling by asking them about their desire to consume the drink again. Finally, we asked questions about the degree of difficulty of retrieval and the use of inference of difficulty of retrieval.

## **MEASURES**

For the feeling of satiation, as satiation is one of the consumer’s hedonic states, it was measured by the desire to consume the product. In line with the first study of Redden and Galak (2013), we used the following question: “*How much would you like to consume this drink now?*” on an 11-points scale (0 = *very little*; 10 = *very much*). To ensure that difficulty of retrieval has a significant difference, participants assessed the task difficulty with three statements: “*The recall task was difficult*”; “*The recall task took you a lot of effort*”; “*The*

*recall task made you think a lot*", adapted from Menon et al. (1995), and using 11-points likert scale (0 = *not at all agree*; 10 = *strongly agree*). To verify that the recall difficulty inference is used, we asked the following question: "*Have you succeeded in recalling the (three) last time(s) you have consumed this drink?*". This procedure is similar to the one used by Whittlesea and Williams (2000, experiment 2) to differentiate individuals who have used their memory from those who used an inference.

## RESULTS

We first segregated individuals with a consumption frequency greater than 1 per month because the control condition of this experiment is to have participants with a relatively high consumption frequency. Finally, we had 44 respondents for the ease of retrieval condition, 43 for the difficulty of retrieval, and 48 for the difficulty of retrieval with attribution. A second control variable in this experiment is that consumers must like the chosen drink. Indeed, there is a significant consumer preference for drinks,  $M1 = 7.23$  for the first experimental group and  $M2 = 6.88$  for the second one. We also tested the manipulated variable, the difficulty of retrieval scale had a significant Cronbach alpha coefficient (0.892), which allows us to say that the difficulty of retrieval has been well measured, and the scale is reliable. Next, we analyzed the differential on recall difficulty between the first two samples to test whether manipulations were succeeded. Participants under the ease of recall manipulation effectively found the task less difficult than those with difficult recall manipulation ( $M1 = 2.42$  vs.  $M2 = 3.52$ , Table 1),  $t(87) = 3.46$ ,  $p < .05$ ,  $n^2 = .126$ . Regarding to recall difficulty inference (Whittlesea and Williams, 2000), participants with the condition of difficult recall remembered less their past consumptions than participants of easy recall ( $M1 = 5.59$  vs.  $M2 = 4.16$ , Table 1),  $t(87) = 4.31$ ;  $p < .05$ ,  $n^2 = .155$ . A planned contrast revealed that participants with the condition of easy recall felt more satiation (less desire) than those of difficult recall ( $M1 = 2.77$ ,  $SD = 2.91$  versus  $M2 = 4.14$ ,  $SD = 3.23$ , Table 2),  $t(132) = 2.02$ ,  $p = .046 < .05$ ,  $n^2 = .03$ . In addition, an orthogonal contrast revealed that participants with the condition of difficult recall felt less satiation (more desire) than those of easy-recall and difficult-recall-with-attribution conditions ( $M2 = 4.14$ ,  $SD = 3.23$  versus  $M1 = 2.77$ ,  $SD = 2.91$  and  $M3 = 2.96$ ,  $SD = 3.31$ ),  $t(132) = 2.18$ ,  $p = .031 < .05$ ,  $n^2 = .035$ . It demonstrated that the use of inference "it is difficult to recall, so I have not consumed a lot" decrease satiation (increase desire). Regarding the condition of difficulty of retrieval with attribution, individuals also liked the chosen drink ( $M3 = 6.33$ ).

## CONCLUSION AND DISCUSSION

The effects of difficulty of retrieval on the feeling of satiation occurred as hypothesized. Furthermore, the conditions were being successfully manipulated to test the effect of the difficulty of retrieval. The reasoning used by consumers, “*It is difficult to recall, then I have not consumed a lot*” has been activated under the inferential process.

Satiation plays an important role in consumption. Over the time, an individual will eventually get fed up by a product with which he or she has been satisfied before, especially for hedonic products. Research in consumer behavior considers satiation as one of the causes of variety-seeking behavior (Kahn, 1995). From an economic approach, satiation has been seen as the result of past consumptions sum (McAlister, 1982). From a psychological approach, satiation is rather seen as the overall perception of past consumption accumulation (Helson, 1964). Our work has a more psychological perspective of satiation, which is based on the premise that satiation is not determined by past consumptions rather constructed by past consumptions.

We showed that in the case of difficulty of retrieval, the consumer can effectively infer that he or she has not consumed a particular product a lot. This reduced perception of past consumption will consequently make the consumer have less feelings of satiation. Under the first two conditions in our experiment, individuals who had to remember the last three times they consumed their favorite drink expressed more desire to consume the drink again than those who just had to remember the last time. We also demonstrated that satiation of participants who experienced difficulty in recalling past experience was lower than those of easy-recall and difficult-recall-with-attribution condition. The use of the inference “it is difficult to recall, so I have not consumed a lot” had an effect on the feeling of satiation. We can also notice that there is a correlation between individuals’ conscious recall about their past consumptions and the used inference effect, in the same way as Whittselea and Williams (2000, experiment 2) found.

Results are in accordance with the heuristic information processing of Chaiken (1980)’s Dual Process Theory. Individuals processed information in an automatic, uncontrolled and rapid way and they used inferences in order to construct their feeling of satiation (desire to consume). Because satiation is an affective state, this construction could also be explained by the top-down emotion generation where low-level appraisal might be primed by higher level processes (Leventhal and Scherer, 1987; van Renkum and Scherer, 1997). The high level refers to a sophisticated and slow processing whereas the low level to automatic prewired

routines. Moreover, results are also in accordance with associative process of Kavanagh, Andrade, and May (2005)'s Theory of Desire.

This research is a replica of the Redden and Galak (2013)'s study. In contrast to our study, they asked individuals to recall their favorite food without the presence of a stimulus, while our study presented different products to consumers and asked them to choose their favorite non-alcoholic drink. Our manipulation is situated in a marketing context, whereas their manipulation was more psychological.

Our contribution has the potential to help marketers take action regarding the recall of the past rewarding consumption. For instance, marketers may find opportunities to highlight how little consumers consume the product. They can contact consumers directly, asking them to recall past consumptions. They can use questions about difficult recall of past consumptions in advertisements.

The first and most important limitation of our research is that we do not directly measure the feeling of deficit. This implies that we suppose that the difficult recall of past consumptions induces consumers to use the difficulty inference "*it is difficult to recall, so I have not consumed a lot*" (Schwarz et al., 1991; Schwarz, 2004; Tversky and Kahneman, 1973)", which makes them feel a deficit and consequently a desire for consumption. The mediating variables between the difficulty of recall and desire must also be analyzed in future research.

A second limitation is the measure of desire with a single indicator. The reliability and validity of this measure cannot be tested in the experiments. However, the use of a single or multiple indicators was discussed in methodological research. For instance, the multiple indicator factor tradition includes works by Thurstone (1947), Mulaik (1972) and Byrne (1989), while the single indicator path tradition has roots in regression and includes Wright (1921), Duncan (1975), Heise (1975), and Hayduck and Littvay (2012). The latter recommends the use of the few best indicators (one or two indicators are sufficient) because additional redundant indicators can introduce additional problems such as error variance or the causality.

Future research should focus on the study of different types of products or experiences. A product recall can be easier than recalling an experience; it will help explain why we feel less satiation for an experience than with a product. Consumers can locate a tangible product more easily than an experience without a reference object. In addition, it would be interesting to analyze the relevant conditions under which the use of the studied inference might actually have an effect. In the same way as Chaiken (1980), we can find conditions that are

appropriate in a purchase situation, such as time or even involvement that may impact the use of the inference.

Condition	Task difficulty M (SE)	Task recall M (SE)
Ease of recall	2.42 (1.3)	5.59 (1.49)
Difficulty of recall	3.52 (1.64)	4.16 (1.58)

Table 1: Task Recall and Difficulty (Easy vs. Difficult recall)

Condition	Desire to consume immediately M (SD)
Ease of recall	2.77 (2.91)
Difficulty of recall	4.14 (3.23)
Difficult of recall with attribution	2.96 (3.31)

Table 2: The Desire to Consume Under Different Conditions

## MAIN REFERENCES

- Alter, A., & Oppenheimer, D. (2009). Uniting the tribes of fluency to form a metacognitive nation. *Personality and Social Psychology Review*, 13, 219-235
- Bargh, J. (1989), Conditional Automaticity: Varieties of Automatic Influence in Social Perception and Cognition, in *Unintended Thought*, ed. James S. Uleman and John A. Bargh, New York: Guilford, 3-51.
- Bettman, J., Luce, M., & Payne, J. (1998). Constructive consumer choice processes. *Journal of consumer research*, 25(3), 187-217.
- Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of personality and social psychology*, 39(5), 752.
- Frederick S. & Loewenstein G. (1999), "Hedonic adaptation", In D. Kahneman, E. Diener et N. Schwarz (Eds), *Well-being: The foundations of hedonic psychology* (pp. 302-329). New York :Russell Sage Foundation.
- Galak, J., Redden J., & Kruger J. (2009), "Variety Amnesia: Recalling Past Variety Can Accelerate Recovery From Satiation," *Journal of Consumer Research*, 36 (6), 575-584.
- Helson, H. (1964), "Adaptation-level theory", New York, NY: Harper and Row
- Jacoby, L., & Dallas, M. (1981). On the relationship between autobiographical memory and perceptual learning. *Journal of Experimental Psychology: General*, 110(3), 306.
- Kahn, B. (1995), Consumer Variety-Seeking Among Goods and Services: An Integrative Review, *Journal of Retailing and Consumer Services*, 139-148.
- Kardes, F., Posavac, S., Cronley, M., & Herr, P. (2008). Consumer inference. *Handbook of consumer psychology*.
- Leventhal, H., & Scherer, K. (1987). The relationship of emotion to cognition: A functional approach to a semantic controversy. *Cognition and emotion*, 1(1), 3-28.
- Lichtenstein, S., & Slovic, P. (Eds.). (2006). *The construction of preference*. Cambridge University Press.
- Menon, G. and Raghurir P. (2003), "Ease of Retrieval as an Automatic Input in Judgments: A Mere-Accessibility Framework?" *Journal of Consumer Research*, 30 (3), 230-243
- Menon, G., Raghurir P. and Schwarz N. (1995), "Behavioral Frequency Judgments: An Accessibility-Diagnosticity Framework," *Journal of Consumer Research*, 22 (4), 212-228.
- Novemsky, N., Dhar, R., Schwarz, N., & Simonson, I. (2007). Preference fluency in choice. *Journal of Marketing Research*, 44(3), 347-356.



- Redden, J. (2008), "Reducing Satiation: The Role of Categorization Level," *Journal of Consumer Research*, 34 (1), 624-34.
- Redden, J., & Galak J. (2013), "The Subjective Sense of Feeling Satiated," *Journal of Experimental Psychology: General*, 142(1), 209-217
- Schwarz, N., Bless, H., Strack, F., Klumpp, G., Rittenauer-Schatka, H., & Simons, A. (1991). Ease of retrieval as information: Another look at the availability heuristic. *Journal of Personality and Social Psychology*, 61, 195-202.
- Schwarz, N. (2004). Metacognitive experiences in consumer judgment and decision making. *Journal of Consumer Psychology*, 14(4), 332-348.
- Tversky A., Kahneman D. (1973), "Availability: A Heuristic for Judging Frequency and Probability", *Cognitive Psychology*, 5, 207-232.
- Wansink, B., Painter, J., & North, J. (2005). Bottomless Bowls: Why Visual Cues of Portion Size May Influence Intake. *Obesity research*, 13(1), 93-100.
- Whittlesea, B. (1997). Production, evaluation, and preservation of experiences: Constructive processing in remembering and performance tasks. *Psychology of learning and motivation*, 37, 211-264.
- Whittlesea, B. & Williams, L. (1998). Why do strangers feel familiar, but friends don't? A discrepancy-attribution account of feelings of familiarity. *Acta Psychologica*, 98, 141-165
- Whittlesea, B., & Williams, L. (2000). The source of feelings of familiarity: The discrepancy-attribution hypothesis. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 26, 547-565.