

EXPLORING CONSUMER'S EMOTIONAL OUTCOMES OF THE ONLINE SEARCH PROCESS

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ABSTRACT

Online search for information with the use of search engines is an increasingly important phenomenon in online consumer behavior. In this way, there is a need for a better understanding of the factors that influence the online information search behavior. Although the affective component has been recognized as critical to understand search behavior, there is a lack of studies that analyze the emotions that users feel when searching for information online. This study is one of the first attempts to fill this gap in the literature by examining the emotional outcomes of the search process taking into account the affective component of the consumer behavior before, during, and after the online search process. In addition, we look at the specific emotions that may take place during an online search and examine them separately, rather than focusing on general positive or negative responses. In addition, by identifying different profiles of online searchers depending on the emotions experienced after the online search, we are able to distinguish the emotional processes and behavioral patterns lead to such emotions.

Keywords:

Online search behavior, search engines, emotions, perceived success, perceived effort

1. Introduction

Most Internet users search for information online everyday (Jansen et al., 2008). The use of the Internet to search for commercial information has grown steadily during the last years, reaching levels close to three quarters of the Internet population in Spain (Asociación Española de Comercio Electrónico –AECE–, 2009). In this way, search engines are one of the main tools that users have at their disposal to find whatever kind of information (Rangaswamy et al., 2009). The use of search engines, together with the use of email services, is the most performed activity by Internet users (AECE, 2009). More specifically, Google tops the list of the most visited websites worldwide (Comscore, 2009; Alexa, 2010a). This is especially true in Spain, where Google is also the most used website, it dominates the online search market with more than 95% of market share and the 80% of the world use of “Google.es” comes from the Spanish market (Comscore, 2006; Alexa, 2010b).

Previous research has largely proven that the use of the Internet has changed the search patterns of consumers (Alba et al. 1997; Klein and Ford, 2003; Peterson and Merino, 2003). In this way, the use of electronic decision aids (i.e., software tools that attempt to understand decision maker’s preferences and make recommendations based on understanding of preference structure; Häubl and Trifts, 2000), such as search engines or recommendation agents, are powerful tools that assist consumers in their interaction with the online environment and help them to acquire better information in a more efficient way (Jansen et al., 2008).

The online information search behavior has been traditionally studied from the economic and decision-making perspectives, which have established that people search for information taking into account the trade-offs between the costs or efforts required to acquire and process information, and the benefits or the accuracy obtained from the search outcome (e.g., Bettman, 1979; Alba et al., 1997; Klein and Ford, 2003). In general terms, although more effort could be perceived as leading to more accurate choices, consumers prefer to minimize their own effort (Bechwati and Xia, 2003).

Nevertheless, the process of search for information is not just a trade-off between costs and benefits perceived by consumers. An information search process “involves the whole experience of the person, feelings as well as thought and actions” (Kuhlthau, 1991, p. 362). Thus, the information search behavior has an affective component that influences the information processing (Nahl, 1998). Past research on information processing has advocated for the study of the searchers’ affective states and emotional outcomes resulting from the search activity (e.g., Wang et al., 2000; Bilal and Kirby, 2002; Nahl, 2004). In this way, online search behavior can be characterized not only by mastering a technique or using certain rules to achieve an optimal result, but the affective states or the emotions experienced during the search activity can determine in a great extent how an online search is performed (Quinn, 2003; Browne et al., 2007). In the marketing literature, the affective component of consumers has been shown to affect their shopping and consumption behavior (e.g., Nyer, 1997; Richins, 1997; Bagozzi et al., 1999). However, little attention has been paid to the study of the role of affective states in online search behavior.

The study of affective states and emotions that arise from the search experience could lead to important implications for the development of the online environment. Emotions play different roles into the consumer behavior. Firstly, the existence of emotions before the development of any action - like a search process- represents an initial motivational state that influences behavior (Bagozzi et al., 1998; Baumgartner et al., 2008). In addition, the emotional reactions that are elicited during a search process can have an impact on the information processing and eventually on the search outcomes (Garg et al., 2005; Clore and Huntsinger, 2007). Finally, and most importantly, emotions can play an evaluative or informational role that will determine subsequent behaviors (Bagozzi et al., 1999; Menon and Kahn, 2002). The task-related affect that result from a search process can have important effects on the evaluation of the search experience and generate different coping behaviors (Creyer and Kozup, 2003).

Following this idea, research on emotions into the online consumer behavior has been mostly oriented toward analyzing the consumers’ affective responses to atmospheric cues (e.g., website design, advertising) in order to generate positive attitudes toward the website or the brand advertised (e.g., Menon and Kahn, 2002; Fiore et al., 2005; Éthier et al. 2006, 2008). Nevertheless, there is a need for a

better understanding of how the users' emotional states and reactions are involved in the online search process. Given that a great amount of Internet episodes begin with a query in a search engine (Jansen et al., 2008), it would be interesting to analyze the emotions that users feel when they are seeking out information with this tool and the emotional outcomes of this process, since the search outcomes are likely to influence all the subsequent interactions with the websites that users access.

Therefore, the aim of this study is to fill this gap in the marketing literature by examining the online search behavior with the use of search engines from an emotional point of view. Specifically, we propose and analyze that the emotions resulting from a search activity depend on the perceptions of success and effort exerted in the search, as well as on the initial affective state before performing the search activity and the emotions experienced while the search process is occurring. In addition, taking into account the emotional outcomes of the search process, we identify different profiles of online searchers regarding their affective states and their search behavior with the search engine. In so doing, we emphasize the importance of the affective component of the online search behavior looking at the specific emotions that affect the search process.

2. Research Proposal

2.1. Theoretical Basis

In the beginning of the shopping process, which is characterized by the search for information, consumers strive to acquire a sufficient knowledge about the different alternatives which will be later considered for the purchase decision (Browne et al., 2007). In this way, people usually search for information trying to maximize the accuracy of the search outcome while minimizing the effort exerted to acquire it (Bechwati and Xia, 2003). Given that individuals have limited cognitive resources to acquire and process all the available information, they frequently choose alternatives that are satisfactory, rather than optimal, expending only the effort necessary to achieve them (Garbarino and Edell, 1997; Häubl and Trifts, 2000). In this process, users seek to reduce uncertainty and risk (Peterson and Merino, 2003). Taking into account these premises, several researches have been carried out in order to find out the cognitive and psychological mechanisms that affect the information search processes (e.g. Kuhlthau, 1991; Payne et al., 1996; Quinn, 2003; Lurie, 2004; Kozup and Creyer, 2006).

The diffusion of the Internet as an information channel has meant profound changes in the ways in which people search for information. The Internet provides boundless amounts of information that can be consulted with low effort and cost, which facilitates decision making process and makes it more efficient (Alba et al. 1997; Peterson and Merino, 2003). However, the great amounts of information available on the Web makes it virtually impossible to process all the contents, and online users may feel information overload which could lead to poorer decision making (Lurie, 2004). Fortunately, the evolution of the Internet has provided with new tools that assist online users to obtain, filter and process information, diminishing the effort of search (Punj and Moore, 2009). In this way, Häubl and Trifts (2000) demonstrated that the use of electronic decision aids allows consumers to make better decisions while exerting less effort, improving the decision-making process. In addition, Bechwati and Xia (2003) proposed a transition of search efforts from the consumer to electronic decision aids, and they found that electronic decision aids are perceived as effort-saving tools which increased the users' satisfaction with the search process.

Into these decision aids, search engines are one of the most important tools to help users in their interaction with the online environment (Jansen et al., 2008). Search engines lower the costs of search. Several authors anticipated the importance of search engines into the online search behavior and demonstrated their value for consumers (e.g., Rowley, 2000; Bechwati and Xia, 2003; Peterson and Merino, 2003). Furthermore, online users firmly rely on search engines' capacity to retrieve the information that matches their informational needs (Pan et al., 2007). Thus, their perceptions regarding whether a search outcome is satisfactory, compared to a situation in which there is no such an aid, will be enhanced. In this way, past research has demonstrated that the ranking of the results retrieved by the search engine, the relative position of the result in the screen, or the number of results retrieved

influence the online users' search patterns and levels of confidence on their choices (Jansen et al., 2008; Lorigo et al., 2008; Oulasvirta et al., 2009).

In spite of the advances that have been implemented in order to explain the online search behavior, there is a lack of studies that analyze the affective or emotional component of online consumers, which always plays an important role in every human and consumer behavior. In this way, we argue that not only the perceived success or failure of a search process is important when examining search behavior, but also the emotional outcomes could have important implications for the potential actions that online users could carry out on the Web. Moreover, by its own nature, the search for information entails a certain degree of uncertainty which creates feelings of confusion and anxiety. These feelings affect information search behavior by means of changes on physical actions, cognitive processes and affective outcomes of the search (Wang et al., 2000; Nahl, 2004).

Following this idea, affect has a direct influence on consumers' information processing (Clore and Huntsinger, 2007), so it is logical to state that it will have an impact on the whole information search process. For the present research, we focus on consumers' affective state before performing an information search, the affect that is generated while the information search is occurring, and the affect generated as a result of the information search.

In this way, several studies show that the initial affective state before performing a search task influences the ways in which people search for and process the information, as well as the overall assessment of the task (Garg et al., 2005; Clore and Huntsinger, 2007). In addition, the individual could use the emotions that arise during the search process to evaluate the relevance of the information that he or she receives, thus serving as "affective filters" (Nahl, 2004). Similarly, the study of task-related affect (Luce, 1998) also stresses the importance of how consumers are feeling during the course of a task for explaining their final decisions and affective consequences in terms of attitudes, confidence or satisfaction (Garbarino and Edell, 1997; Creyer and Kozup, 2003). Furthermore, the emotional outcomes of a search process could have a great impact on all the subsequent behaviors, regardless of whether the goal of the consumer is to purchase the product or simply increase their knowledge. In this way, Reynolds et al. (2006) developed the construct of search regret, defined as a "post-search dissonance that results from an unsuccessful pre-purchase search" (p. 339). The authors found that this emotion is of particular interest for marketers, since an unsuccessful search that causes a regretful experience could have negative consequences for the store (e.g., blame attribution and active coping behaviors).

The marketing literature has demonstrated the importance of emotions in explaining the online consumer behavior. Research on this topic has mainly been oriented toward examining how the online environment influences consumers' emotions and affective responses to the online store, generating positive attitudes and purchase intentions (e.g. Fiore et al., 2005; Nambisan and Baron, 2007). In this way, Éthier et al. (2006; 2008) considered emotions as direct antecedents to shopping behaviors. The authors demonstrated that the perceived website quality influences users' emotional responses toward the website, which in the end affects their purchase behavior. In the same line, previous research has focused on the design of pleasant virtual experiences with products (e.g., interactivity, vividness) to elicit positive attitudes and emotions on consumers (Klein, 2003; Daugherty et al., 2008).

Nevertheless, there is a lack of literature focused on the analysis of users' emotions in the online search process. Research on information processing has stated that the searcher's affective states are key drivers of the search process and that several affective variables (e.g., task motivation, optimism) have a great influence on certain cognitive behaviors of online searchers (Kuhlthau, 1991; Nahl 1998, 2004; Wang et al., 2000). However, the literature about this topic has treated the individual as a "searcher", rather than as a "consumer". In these cases, the goal of the information search is to increase individuals' knowledge on a particular problem or topic (Kuhlthau, 1991; Bilal and Kirby, 2002). For our study, we adopt a market perspective to analyze the online search behavior with the use of search engines in which the goal is to acquire relevant information for the purchase decision. In this respect, few attempts have been made to study how the consumers' emotions affect online search behavior and the emotional outcomes of the search process. For example, Menon and Kahn (2002) investigated the levels of pleasure and arousal elicited by the website which have an impact on online

consumers' search behavior, which ultimately influenced their subsequent shopping behavior. Pratt et al. (2004) examined whether the navigational orientation of the user (i.e. vertical and horizontal) influenced the levels of efficiency and frustration feelings in a search task, although their results revealed no significant differences.

Taking into account all above, the aim of the present study is to analyze the whole emotional experience of the user when searching for information with the use of a search engine. Given that a great amount of online sessions begin with a query in a search engine (Jansen et al. 2008), online users do not usually encounter a website that elicits emotional reactions in the first place. Instead, they formulate a query in the search engine, scrutinize the results that the search engine retrieves, and click on the result that better seems to match their needs. Thus, we try to examine the emotional outcomes that result from this experience. Specifically, we try to find answer to the following research questions:

RQ1: How do the perceptions of success and effort in the search, the initial affective states, and emotions during the search process, influence the emotions experienced after a search process is performed?

RQ2: Is it possible to identify groups of online users in terms of the emotions resulting from the search process representing different emotional and behavioral patterns in search engines?

2.2. Determinant Factors of the Emotional Outcomes of the Online Information Search (RQ1)

In order to analyze the emotional outcomes of an online information search, we need first to allude to the well established trade-offs between search costs and benefits. Given that people search for information in basis of the trade-offs between the accuracy perceived by the information and the efforts exerted to acquire it (Bettman, 1979) it is logical to propose that both factors will influence the emotions experienced once the search process has ended. As stated earlier, people tend to prefer to exert less effort although this would lead to less accurate search outcomes (Bechwati and Xia, 2003). In this way, we focus on users' perceptions of success and effort of the search.

Regarding the effects of the perceived success and effort in the search task on the emotions experienced after the search process, the direction of the effects for the former seem to be clear: if the user perceives that a search process has been successful, positive emotions will arise, while the contrary should occur when the user perceives that the search has been unsuccessful. However, the effects for the latter are more blurred.

In this way, past research has stated that the expenditure of effort entails both costs, which result in negative affect, and benefits, which could generate positive feelings. On the one hand, consumers want to minimize the effort, and the perceived effort in a search process could produce negative effects. In this way, Garbarino and Edell (1997) showed that those alternatives that are more effortful to process are less preferred, given that the effort exerted to process the alternative produces negative affect. In addition, Reynolds et al. (2006) demonstrated that search effort is a direct antecedent of search regret feelings. On the other hand, the perceptions of the effort exerted on a search process could have positive effects on users' feelings, if the search process has been successful. According to Dissonance theory (Garbarino and Edell, 1997; see also Festinger, 1957), consumers retrospectively evaluate the effort they put into attaining a goal and value the goal more positively the more effort they put into it. When a search has been successful, users may perceive that the effort has paid off, and this perception could have a positive impact on the emotions resulting from the search experience. Therefore, we expect that the perceived effort exerted in the search will affect both the positive and negative emotions that users feel after the process.

In addition to the perceived success and effort, we expect that users' initial affective state and the emotions experienced during the search activity will influence the emotional outcomes of the search process. Into the shopping-decision process, the acquisition and processing of information could be influenced by the consumer's emotional state (Bagozzi et al., 1999; Raghunathan and Pham, 1999). Specifically, the initial emotional state could involve different kinds of motivation to carry out a search task. In this way, the individual's motivations could lead to different action readiness, which could determine the intensity of the emotions experienced (Frijda, 1987). Moreover, different moods

can influence subsequent emotions and behaviors (e.g., Mattila and Wirtz, 2000; Louro et al., 2005). In the specific context of online search behavior, there is some evidence that motivations and affective states related to a search task correlate with the affective states that result from the search activity (Nahl, 2004). Thus, it is logical to propose that users' internal motivation to perform an online search, given by their initial emotional state, will influence the emotional outcomes of such process.

Finally, the emotions felt while the user is searching for information are also expected to affect the emotions that result from the online search process. In a decision process, the affect that is derived from the characteristics of the activity could have a great impact on the final decisions that he or she makes and the consequent behaviors. Specifically, task-related affect is defined as "relatively short-lived affective states directly resulting from and focused on a choice with which one is currently engaged (Luce, 1998, p. 410)". Following this idea, past research has demonstrated that task-related emotions have an influence on the levels of choice-process satisfaction, which affect choices, attitudes and behaviors (Zhang and Fitzsimons, 1999; Creyer and Kozup, 2003; Garg et al., 2005). As a (online) search process can be seen as a means of decision-making process (Browne et al., 2007), in which the user consider a set of alternatives (the results retrieved by the search engine) before choosing one option (clicking on one result to access the website information), we may expect that the emotions experienced during the online search are likely to affect the emotions once the process is over.

2.3. Identifying Online Search Patterns Depending on the Emotional Outcomes of the Search Process (RQ2)

The second objective of this study is to identify profiles of online users depending on the emotional outcomes of the search process. In so doing, we look at different affective structures regarding the users' initial affective states, the emotions experienced during the search activity, and users' interaction with the search engine used to obtain information. We take the advantage of the informative role of emotions (Raghunathan and Pham, 1999; Zeelenberg and Pieters, 2006; Clore and Huntsinger 2007) in order to find out the processes that could generate different positive and negative emotions. Cognitive Appraisal theories have been traditionally applied to understand the process by which emotions are elicited (Smith and Ellsworth, 1985; Frijda, 1987; Roseman, 1991; Roseman et al., 1996). This standpoint states that emotions appear as a response to the individuals' appraisal of something considered as important to their welfare (Zeelenberg and Pieters, 2006). Moreover, the "affect-as-information" hypothesis states that affect offers persuasive information about the personal value of whatever is in mind at the time (Clore and Huntsinger, 2007). In this line, finding oneself performing a search task could represent a source of affect that provides information about the course of the activity. This information may be used to regulate attention and search behavior. Thus, we adopt a retrospective point of view and try to identify, knowing different emotional structures that result from a search process, the affective and behavioral mechanisms that could have led to such structures.

Following this line of inquiry, it has been argued that in the existence of positive feelings, people hardly question the causes of their positive affect. However, when people feel negative emotions, they tend to engage in a process to identify the causes of these feelings and try to correct their behavior in order to change to a positive state (Kuo et al., 2009). Thus, we may expect differences regarding online searchers' affective states and behaviors depending on the evaluation of the search experience.

In addition, past research has acknowledged that specific emotions have different effects on the consumer behavior, although they share the same valence (Smith and Ellsworth, 1985; Raghunathan and Pham, 1999; Clore and Huntsinger, 2007). In this way, anger people may have different cognitive and affective evaluations of the same event than sad people, given the different affective information that they perceive from the environment. It is not the same to feel joy or pride, or to feel anger or sadness. For this reason, we expect to find that the specific emotions resulting from the online search may be formed by different initial affective states and emotions felt during the search process. In this way, although the success or failure of an online search is likely to elicit positive or negative emotions, looking at the specific emotional responses of users could give us valuable information about how these emotions are generated.

3. Method

3.1. Sample and Procedure

A total sample of 111 participants (61 men and 50 women; ages ranging from 18 to 35) enrolled in a field survey in exchange for a participation in a draw. Specifically, the survey consisted of the development of an online search episode using the search engine Google. We chose Google as our target search engine since it represents the most used search engine in Spain (Alexa, 2010a). Regarding the search task, we follow past research that has investigated online search behavior with search engines (Lorigo et al. 2008; Oulasvirta et al., 2009). Participants were asked to find the cheapest price for an adult ticket for a famous circus spectacle (see Broder 2002 for a review of online search tasks). According to recent studies, the search and purchase of tickets for concerts and diverse leisure spectacles are among the most performed on the Web (U.S. Census Bureau, 2009; Pew Internet Research, 2009; Marketing Charts, 2010). In addition, a pre-test ($n = 28$) confirmed the attractiveness of this type of products when users search for information online¹.

The study was based on eye-tracking methodology, which allowed us to record the participants' eye movements during the search activity, and paper-and-pencil questionnaires to gather information about their initial affective states, the emotions experienced during and after the search activity, and measures of perceived success and effort. A Tobii Studio T60 eye-tracking device was employed to collect participants' gaze data. The study was conducted during two weeks on May 2009. Since only one participant could carry out the search activity at each time, the sessions were scheduled and subjects were summoned to the lab room every fifteen minutes.

Before entering the lab where the eye-tracking was allocated, the participant read first a brief introduction about the eye-tracking methodology and was told that the objective of the study was to explore online search behavior. At that moment, the participant reported his or her initial affective state. After that, the participant came into the lab room in order to perform the search activity. Once the eye-tracker had correctly calibrated the eye movements of the participant, the search activity started. A screenshot showed participants the search activity that they had to perform. When the participant was ready, he or she pushed the space bar and the Web browser opened the Google search engine and performed the search process. Participants then reported the emotions that they had experience during and after the search activity, as well as the perceived success and effort exerted in the search process.

3.2. Measures

Regarding the participants' initial affective states, the PANAS scale was adopted (Watson et al., 1988). This scale is widely recognized and used in the literature (e.g. Mano and Oliver, 1993; Raghunathan and Pham 1999; Garg et al., 2005) and is especially useful to capture individual's affective state at the present moment, as their creators suggest (Watson et al., 1988). Participants reported in a 7-point scale the extent to which they felt each one emotions contained in the scale just before performing the search task (1 = "not at all", 7 = "extremely"). A Principal Component Analysis with Varimax rotation (Hair et al., 1998) was conducted in order to disentangle the underlying factors of the scale. The analysis yielded four factors with eigen-values higher than 1, which explained a 64.631% of variance (all factor loadings higher than 0.5; Hair et al., 1998). The four factors were labelled as follows: *cheerful* (enthusiastic, alert, inspired, determined, attentive, and active; $\alpha = 0.860$), *anxious* (distressed, nervous, and jittery; $\alpha = 0.790$), *depressed* (upset, guilty, scared, ashamed, and afraid; $\alpha = 0.823$), and *adverse* (hostile, proud, and irritable; $\alpha = 0.688$). Although the PANAS scale was originally created to gather general positive and negative affective states, the results of the

¹ We took the list of the top products sold online as a reference, including travels, apparel, small appliances and so on (AECE, 2009). Then we asked subjects to indicate, on a 7-point scale (1 = "never", 7 = "very frequently"), to what extent they search for information about such products. Tickets for leisure activities and spectacles was among the most frequently searched, with a mean score of 4.41 out of 7 (std. dev. = 1.691). A Friedman test (Leech et al. 2008) was conducted to assess if there were differences between the means scores of the products. The test showed a significant difference ($\chi^2(12, 28) = 162.904, p = 0.000$). Planned Wilcoxon contrasts indicated that this mean was significantly higher compared to the rest of products (all p 's < 0.05).

analysis confirm the notion that specific negative emotions with the same valence could have different meanings (Raghunathan and Pham, 1999). This is especially important for our research purposes, since we want to examine the effects of specific emotions, rather than broad categories of positive and negative affective states.

Taking into account the literature on information search behavior and cognitive appraisal theories, we carried out a pretest in order to find out which specific emotions are likely to be felt when people search for information online. In this way, we based on Roseman's framework (Roseman 1991; Roseman et al., 1996), since several of the specific emotions contained in this framework can be experienced in the shopping process (e.g., Richins, 1997) and it has been successfully used in past research on online consumer behavior (Éthier et al., 2006; 2008). Thirty-seven graduate and postgraduate students (mean age = 27.46; men = 19, women = 18) with high levels of online shopping experience (96.7% had purchase at least four products online during the last year) were asked to indicate whether they have sometimes felt each of the following 17 emotions: surprise, hope, fear, joy, relief, sadness, distress, frustration, disgust, liking, dislike, anger, contempt, pride, regret, guilt, and shame (Roseman et al., 1996). According to the different appraisal dimensions in which emotions can be categorized and the own nature of the specific emotions, the emotions were classified into those related to the course of the search process and those related with the search outcome. Participants in this pretest rated "1" if they had felt the specific emotions and "0" otherwise. In this way, there were four emotions that were barely felt: fear (8.1%), sadness (8.1%), guilt (2.7%), and contempt (8.1%). We carried out a one-sample T test in order to examine whether these values were significantly different from zero. The results confirmed that these emotions were not especially felt when searching for information online ($t_{fear} = 1.298, p > 0.1$; $t_{sadness} = 1.298, p > 0.1$; $t_{guilt} = 1, p > 0.1$; $t_{contempt} = 1.298, p > 0.1$), so we deleted them from the final questionnaire. The rest of the emotions were classified, according to their appraisal dimensions, as emotions during the search (surprise, hope, joy, distress, liking, and dislike), and emotions after the search (joy, relief, pride, regret, frustration, disgust, and anger). In the final study, participants reported the extent to which they had felt these specific emotions (1 = "not at all", 7 = "extremely").

At the end of the search process, participants were asked: "do you think that you have found what you were looking for?" which was answered "yes" or "no". This served as a measure of the perceived success in the search task. In this way, a 44 % of participants ($n = 49$) indicated that they have succeeded in the search. Regarding the perceived effort, we used a three-item scale developed by Reynolds et al. (2006) who validated it as an antecedent of search regret feelings. Participants indicated on a 7-point scale to what extent they agree or disagree (1 = "strongly disagree", 7 = "strongly agree") with the three statements ("in general, searching for this item required a lot of effort", "I had to search too hard to find the product I wanted", "it was difficult searching for this product"; $\alpha = 0.806$).

Finally, the eye-tracking device was employed to obtain the visual information data that will serve as a measure of the participants search behavior with the search engine. The software allowed us to aggregate all the Google's results pages that participants viewed during the search activity. We gathered information about the number and duration of the fixations in the results page. Fixations are pauses between saccades (i.e., fast jumps or movements of the eyes) of relative quiescence (between 200ms and 600ms) that enables the eye to see clearly the area in focus, which allows the visual system to gather information (Pieters and Warlop, 1999; see Wedel and Pieters, (2006) for a review of eye-tracking methodology in marketing). These behavioral measures of time and frequency have been used and validated as an instrument to gather information about individual's visual attention and cognitive effort, given that visual attention plays a central role in cognitive processing and reflects the mental state of an individual (e.g., Lorigo et al., 2008; Kuo et al., 2009; Oulasvirta et al., 2009).

In addition, the eye-tracker software recorded the time that participants took to make a mouse click and the time from the first fixation in the Google's results page to the first mouse click. These times were collected and aggregated ($\alpha = 0.992$; explained variance = 99.207%), and their average was taken to form a measure of depth of search (i.e. total time that the consumer spends evaluating the results on the results page; Huang et al., 2009). Moreover, we looked at the *scanpaths* (i.e., order or sequence of the fixations; Lorigo et al., 2008) to obtain information the breadth of search (i.e., number of results

that the consumers scrutinize during the time that they are viewing the results page; Huang et al., 2009). A result was defined to be scrutinized if it received at least two fixations or at least one fixation longer than 500 ms. Finally, the quotient between depth and breadth of search was calculated in order to know, on average, how long the participants viewed each result.

4. Results and Discussion

4.1. *Determinant Factors of the emotions experienced after the search process*

In order to analyze the determinant factors of the emotional outcomes of the search episode, we ran multiple regression analyses, taking each of the specific emotions as the dependent variable, and the perceived success in the search activity, the perceived effort exerted in the search, the initial affective state and the emotions during the search process as the independent variables. The results of these analyses are shown in Table 1.

The perceived success in the search task was the strongest determinant of the emotional outcomes of the search. In this way, the perceived success in the search affected positively the positive emotions of joy, relief, and pride experienced after the search activity. On the contrary, the perception of failure to accomplish the search affected significantly the negative emotions of regret, frustration, disgust, anger.

Looking at the particular emotions that were experienced after the search process, we observe that each emotion was affected by different sets of affective states and emotions during the search activity, as well as the perceptions of effort. Specifically, feelings of joy were positively affected by the perceived effort exerted in the search task and the feelings of hope during the search process. The more hopeful the participant was feeling during the search, the happier he or she felt once the search was ended. The same factors affected the feelings of pride, although the fact of enjoying the search experience also influenced marginally ($p = 0.06$). Feelings of relief after the online search process were more characterized by the uncertainty and the subsequent anxiety that any search task entails (Kuhlthau, 1991). Thus, relief was related to feelings of hope and distress during the search activity, and we also find a marginal effect of an anxious initial state ($p = 0.09$).

Regarding the factors that affected the negative emotions experienced after the search process, we observe that regret and frustration on the one hand, and disgust and regret on the other hand, share common determinants. In this way, feelings of regret and frustration were affected by the initial affective state. Specifically, the fact of feeling cheerful before performing the search activity had a positive effect on the feelings of regret and frustration. Besides, an adverse initial affective state also influenced the feelings of regret. The feelings of dislike during the search activity also affected positively the levels of regret and frustration of participants. Finally, the fact of experiencing surprise and disliking during the search process affected significantly the feelings of disgust and anger of participants.

Moreover, the results of the regressions show that specific emotions experienced after the search process could have been formed by different structures, albeit they may share a common valence. In this way, whereas the participants' initial affective state barely affected the positive emotional outcome of the information search (we only find a marginal effect of an anxious state on the feelings of relief), these initial states did impact on the nature of the negative emotions experienced afterwards. Thus, feeling cheerful before performing the search task affected subjects' post-search feelings of regret (marginally) and frustration, but not the feelings of disgust or anger. An initial adverse state also influenced the feelings of regret. On the contrary, experiencing surprise during the search process affected participants' feelings of disgust (marginally) and anger, but not the feelings of regret or frustration. A plausible explanation might be found from appraisal theories of emotions. In this way, when the users feel encouraged before performing an online search process, they could be looking forward succeeding in the task, rather than avoiding failing, indicating a promotion focus (Louro et al. 2005). When they didn't find what they were looking for, they might have felt bad with themselves for not being able to succeed, rather for other causes. In contrast, feelings of disgust and anger are attributed to other causes apart from the self (Roseman et al., 1996; Raghunathan and Pham, 1999). Thus, when users encountered something surprising during the search activity, this feeling could have produced a negative impact on users, provoking feelings of disgust and anger. An interesting finding

here is that surprise, a bivalence emotion (Oliver, 1993), could have negative effects when searching for information online. Nevertheless, disliking the experience affected all the negative emotions in the same extent (beta coefficients ranging from 0.228 to 0.279).

TABLE 1
Regressions on the Emotions after the Online Search Activity

Emotion after Searching	Joy	Relief	Pride	Regret	Frustration	Disgust	Anger
Corrected R²	0.618	0.619	0.582	0.628	0.604	0.383	0.369
Perceived Success in the Search	0.676 (0.000)***	0.733 (0.000)***	0.680 (0.000)***	-0.694 (0.000)***	-0.621 (0.000)***	-0.451 (0.000)***	-0.413 (0.000)***
Perceived Effort in the Search	0.202 (0.006)***	0.078 (0.285)	0.158 (0.039)**	-0.025 (0.730)	0.034 (0.644)	-0.014 (0.878)	0.122 (0.194)
Initial Affective State							
Cheerful	0.026 (0.459)	0.069 (0.277)	-0.063 (0.341)	0.121 (0.056)*	0.152 (0.020)**	0.107 (0.188)	0.090 (0.270)
Anxious	0.066 (0.821)	0.122 (0.093)*	0.110 (0.148)	-0.030 (0.670)	0.001 (0.993)	-0.113 (0.222)	-0.057 (0.541)
Depressed	-0.053 (0.362)	-0.059 (0.414)	-0.120 (0.115)	-0.025 (0.722)	0.035 (0.632)	0.077 (0.399)	0.065 (0.480)
Adverse	-0.016 (0.161)	0.008 (0.913)	0.017 (0.821)	0.169 (0.016)**	0.117 (0.104)	0.114 (0.203)	0.031 (0.730)
Emotions during Searching							
Surprise	-0.095 (0.161)	-0.035 (0.600)	-0.071 (0.317)	0.042 (0.526)	0.042 (0.545)	0.149 (0.086)*	0.176 (0.046)**
Hope	0.248 (0.001)***	0.239 (0.002)***	0.157 (0.045)**	0.052 (0.483)	-0.051 (0.505)	-0.057 (0.544)	-0.048 (0.616)
Joy	0.149 (0.115)	0.093 (0.322)	0.185 (0.063)*	0.072 (0.438)	0.083 (0.389)	-0.025 (0.833)	-0.037 (0.758)
Distress	0.091 (0.207)	0.193 (0.008)***	0.046 (0.543)	-0.018 (0.796)	0.080 (0.276)	0.048 (0.599)	0.000 (0.997)
Liking	-0.089 (0.361)	-0.091 (0.352)	0.020 (0.841)	0.066 (0.493)	0.051 (0.605)	0.137 (0.270)	0.075 (0.547)
Dislike	-0.135 (0.114)	-0.079 (0.351)	-0.029 (0.748)	0.266 (0.002)***	0.228 (0.010)**	0.279 (0.011)**	0.244 (0.027)**

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

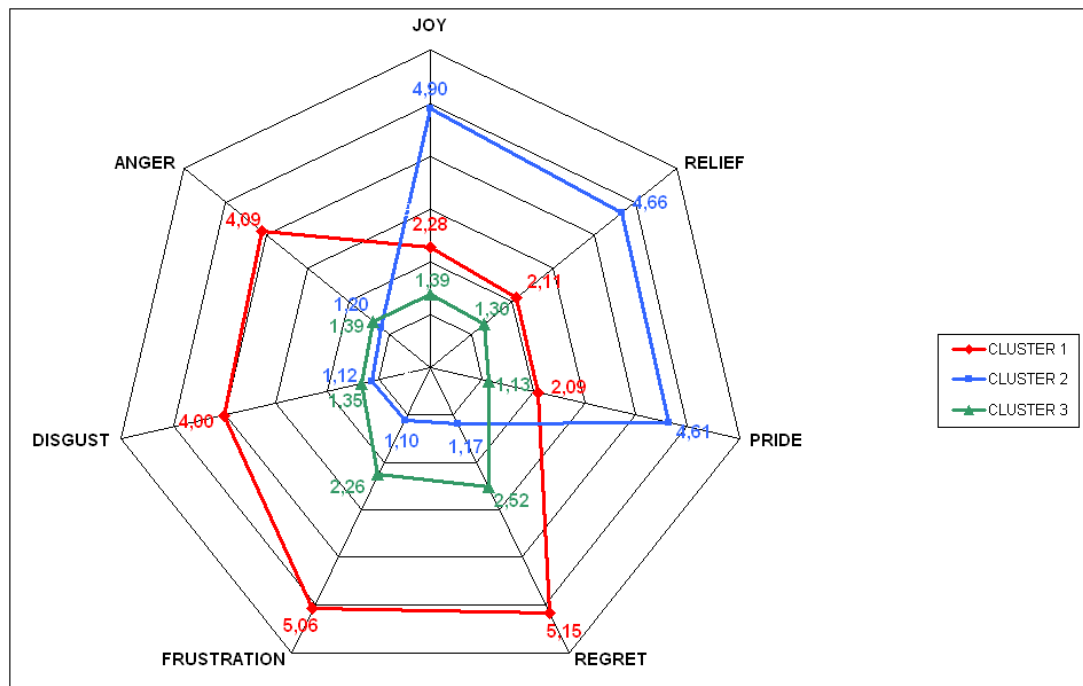
Regarding the positive emotions experienced after the search process, we find that experiencing hope during the search activity affected all the positive post-search emotions. Hope is a common feeling in information search, given that both share a dimension of uncertainty (Roseman et al., 1996; Nahl 1998). When the individuals have a certain degree of experience with performing online searches, there is a strengthening of self-confidence, and more hope that searches will be successful. These feelings may thus reinforce positive feelings after a search process is completed. In addition, the results are consistent with literature on emotions, stating that positive feelings have less nuances in their content than negative emotions (e.g., Shaver et al., 1987; Bagozzi et al., 1998; Laros and Steenkamp, 2005). In this way, we only find a difference for relief which, according to appraisal theories (Roseman et al., 1996), arises when there is a possible undesired outcome. Thus, feeling more distress during the search task could have led to relief feelings when the participant succeeded in the search.

4.2. Identifying Online Search Patterns Depending on the Emotional Outcomes of the Search Process

The second objective of our study was related to the identification of profiles of online users regarding their emotions experienced the information search process. To accomplish it, we follow a two-step clustering procedure (Punj and Stewart, 1983; Arnold and Reynolds, 2003). First, we submitted the emotions after the search process to hierarchical cluster analysis² to arrive at a preliminary solution regarding cluster number. As suggested by previous studies (Arnold and Reynolds 2003), a range of cluster solutions (2-4) was tested, and examination of the dendrogram and the agglomeration schedule supported a three-cluster solution (Visauta and Martori, 2003). A discriminant analysis also provided support to a three-cluster solution, given that the three-cluster solution classified correctly the 96.4% of the cases. We then conducted a k-means cluster analysis using the hierarchical cluster centroids as initial seeds (Hair et al., 1998). The results supported the three-cluster solution ($n_1 = 47$; $n_2 = 41$; $n_3 = 23$). The means of the groups identified are shown in Figure 1. ANOVA analysis on the emotions after the search process and the three-cluster solution as the independent variable confirmed the existence of significant differences across the three groups (F 's ranging from 50.028 to 201.336; all p 's = 0.000).

The groups do not differ in terms of demographic variables (gender: $\chi^2(2) = 2.116$, $p = 0.347$; age: $\chi^2(6) = 5.092$, $p = 0.532$; online shopping experience: $\chi^2(6) = 7.808$, $p = 0.252$). For the rest of variables considered in the study, including those of search behavior on the Google's results page, we conducted several analyses of variance in order to find out significant differences between the three clusters. Table 2 displays the mean values and standard deviations, the last column reflecting the significant differences between clusters, which were calculated by means of Tukey HSD post-hoc tests at a significance level of 0.05 (Arnold and Reynolds, 2003).

FIGURE 1
Cluster's Mean Values of Emotions after the Search Process



As it can be observed, cluster 2 was formed by the participants who all succeeded in the search task. This group is characterized by significantly higher positive emotions experienced after the search process. Regarding the initial affective state, this group was slightly more encouraged than cluster 3. In addition, this group of users experienced more hope, liking, and enjoyed more the experience than the rest of participants. With respect to the behavioral measures of search, we only observe a

² Ward's method, squared Euclidian distances

marginally significant difference regarding the ratio depth/breadth of search, indicating that these users spent slightly more time scrutinizing each result than cluster 1.

TABLE 2
Descriptive Data for the Clusters based on the Emotions after the Search Activity

Cluster	Cluster 1	Cluster 2	Cluster 3	Total	Significant group differences
N	47	41	23	111	
Perceived Success in the Search (n)	5	41	3	49	
Perceived Effort in the Search	3.284 (1.319)	2.317 (1.095)	2.333 (1.227)	2.730 (1.301)	1-2; 1-3
Emotions after the Search Process					
Joy	2.277 (1.930)	4.902 (1.300)	1.391 (0.722)	3.063 (2.094)	2-1; 2-3
Relief	2,106 (1.747)	4.659 (1.296)	1.304 (0.635)	2.883 (1.981)	1-3*; 2-1; 2-3
Pride	2.085 (1.705)	4.610 (1.481)	1.130 (0.344)	2.820 (2.014)	1-3; 2-1; 2-3
Regret	5.149 (1.063)	1.171 (0.442)	2.522 (1.344)	3.135 (2.038)	1-2; 1-3; 3-2
Frustration	5.064 (1.111)	1.098 (0.300)	2.261 (1.287)	3.018 (2.040)	1-2; 1-3; 3-2
Disgust	4.000 (1.655)	1.122 (1.400)	1.348 (0.573)	2.387 (1.790)	1-2; 1-3
Anger	4.085 (1.666)	1.195 (0.601)	1.391 (0.722)	2.459 (1.833)	1-2; 1-3
Initial Affective State					
Cheerful	4.596 (0.942)	4.561 (0.989)	4.000 (1.054)	4.459 (1.002)	1-3; 2-3*
Anxious	2.865 (1.195)	2.472 (1.057)	2.493 (1.171)	2.643 (1.147)	
Depressed	1.755 (0.980)	1.524 (0.745)	1.446 (0.564)	1.601 (0.823)	
Adverse	2.680 (1.040)	2.285 (0.608)	2.000 (0.847)	2.293 (0.896)	1-2*; 1-3
Emotions during Searching					
Surprise	4.191 (1.765)	3.488 (1.502)	3.043 (1.786)	3.693 (1.726)	1-3
Hope	3.362 (1.169)	3.976 (1.332)	2.609 (1.699)	3.432 (1.431)	1-3*; 2-1*; 2-3
Joy	3.511 (1.502)	4.073 (1.367)	3.043 (1.492)	3.622 (1.489)	2-3
Distress	3.404 (1.313)	2.366 (1.513)	2.565 (1.441)	2.847 (1.484)	1-2; 1-3
Liking	3.681 (1.253)	4.415 (1.322)	3.478 (1.648)	3.910 (1.411)	2-1; 2-3
Dislike	3.064 (1.466)	1.659 (0.990)	1.913 (1.311)	2.306 (1.426)	1-2; 1-3
Behavioral Measures during Searching on Google					
Fixations Length	10.166 (7.326)	9.558 (6.881)	16.525 (14.842)	11.264 (9.523)	3-1; 3-2
Fixations Count	30.512 (21.879)	31.059 (21.585)	52.650 (42.646)	35.268 (28.441)	3-1; 3-2
Depth of Search	7.018 (6.712)	9.869 (8.491)	12.191 (10.441)	9.025 (8.334)	
Breadth of Search	4.136 (3.387)	4.371 (2.850)	5.263 (4.369)	4.439 (3.413)	
Ratio Depth/Breadth	1.699 (0.681)	2.265 (0.776)	2.385 (1.038)	2.029 (0.845)	2-1; 3-1

* Significance at $p < 0.1$

We find the most interesting differences regarding the differences between clusters 1 and 3, which have a similar high percentage of failure perceptions. Obviously, both groups felt significantly more negative emotions after the search process than cluster 2, although only cluster 1 felt significantly more disgust and anger than cluster 2. The results of the analyses reveal that cluster 1 was more *sensitive* than cluster 3, given that these participants felt almost all emotions more intensively (both positive and negative emotions). Compared with the rest of clusters, this group of users perceived more effort exerted in the task, were more adverse before the search activity, and felt more distress and dislike during the search process. Regarding the specific differences between clusters 1 and 3, we

observe that participants in cluster 1 were more cheerful before performing the search task, felt more surprise and slightly more hope during the search process than cluster 3.

Although cluster 3 was the least *sensitive* of the three groups, we observe that these participants paid significantly more attention or exerted significantly more cognitive effort on the Google's result page than the rest of participants. In this way, participants in cluster 3 carried out more and longer fixations than clusters 1 and 2, and spent more time scrutinizing each result than participants in cluster 1. This finding is very interesting, since it appears a trade-off between the affective and behavioral measures. Thus, the less sensitive the user is, the more attention or effort he or she pays to the search process.

5. Conclusions, Implications and Future Research

The results of our study show that the emotional outcomes of an online search process can be influenced by different structures of perceptions, affective states and emotions felt during the search activity. Given that the search for information is part of the everyday life of Internet users and that most of Internet episodes start in a search engine there is a need for a better understanding of this online search behavior. In this way, the affective component of consumers has been acknowledged as a critical part of search behavior, since affect could guide behavior and could influence the information processing and judgment (Bagozzi et al., 1999; Clore and Huntsinger, 2007). However, our research is one of the first attempts to fill this gap in the literature, analyzing the affective component of online users before, during, and after the online search process which begins in a search engine. This is particularly important given that the online experience is formed during the online navigation, rather than before or after shopping (Zhou et al., 2007), and the result of this process will guide all the subsequent actions.

In summary, the results of the analyses indicate that the perceived effort exerted on a search task has a positive impact on the positive emotions experienced after the search process, whereas it has no impact on the negative emotions. When users find the information they have been looking for (or at least they perceive so), they tend to value positively the effort they put for its attainment, albeit such effort has been relatively low. In addition, the dimension of uncertainty that every information search entails seems to take place also in the online context, given the existence of related emotions during the search experience (i.e., hope and distress). More concretely, hope has been found to influence all the positive emotions after the search process. According to appraisal theories, feelings of hope arise from environments characterized as goal congruent and uncertain but possible (e.g., Roseman, Antoniou, and Jose 1996; MacInnis and Mello 2005).

Specific negative emotions that occurred after the search task and generated primarily by a perceived failure in the process, might be influenced by different initial affective states and emotions during the search activity. Feelings of regret and frustration could arise when the users feel positive and encouraged to find the information but they are ill at ease during the search process and fail to get it. Contrary to previous studies (Reynolds et al., 2006), the perceived effort did not affect the feelings of post-search regret. Future research should examine online search regret in more detail, given that regret may result in switching behaviors and negative word of mouth. Furthermore, past research has shown that recreational online shoppers enjoy the surprise and excitement of the shopping experience (Wolfenbarger and Gilly, 2001). Our results indicate the contrary for goal-oriented purposes. In this way, if online users are surprised when they are searching for specific information about products and don't succeed in finding it, feelings of disgust and anger could arise. Surprise is a bivalence emotion characterized by a dimension of unexpectedness (Roseman, 1991; Oliver, 1993). Online marketers should take into account this issue very carefully, given that online users are usually interrupted in their navigation by unexpected sources (e.g., pop-ups, broken links), which may have undesirable outcomes. Thus, search engine managers should try to avoid such unexpected situations when online users are using these tools.

Nevertheless, our findings show that dislike, an emotion that is appraised as being caused by external sources and arises when the user feels low control over the situation (Roseman et al., 1996) is a common feeling for the generation of post-search negative emotions. In order to diminish the effects of dislike, online marketers should develop strategies in order to enhance users' perceptions of

interactivity with the search engine, given that interactivity offers users a higher control over the navigation and favors the information flow (Fiore et al., 2005).

Finally, we have conducted a cluster analysis in order to identify possible online users' profiles taking the emotional outcomes of the search process as a reference. The main findings of this analysis are related to the differences in the intensity of the affective variables and in the behavior that users carried out in the search engine. In this way, it might be that the less sensitive the user is, the more attention and effort he or she pays to the search task, thus producing less intense negative emotions both during and after the online search. Further research is needed in order to know the underlying mechanisms of this relationship by examining whether this *sensitivity* may be due to situational factors (e.g., the search task, levels of arousal), or other personality and sociodemographic variables not considered in this study (i.e. gender, age, online shopping experience).

This study is subject to several limitations but also offers opportunities to future research directions. First, given our research purposes, we considered only the context of online search for specific purchase-related information in a specific search engine. Search engines are tools that help people find whatever kind of information apart from purchase purposes, such as people, places, things, and so on (Rangaswamy et al., 2009). Besides, search engines are just one of the many tools that online users have at their disposal to acquire, filter and process information. Thus, in order to obtain more external validity for the results, it would be desirable to study a broader range of search tasks and electronic decision aids. Second, we would need to examine these relationships with larger sample sizes to have generalization for the results, although this study exceeded previous researches which were based on eye-tracking methodology (e.g. Pan et al., 2007; Oulasvirta et al., 2009).

Third, we did not manipulate the participant's initial affective states in order to find different effects for specific affect-induced situations. In this way, situational factors are highly likely to affect online search processes in a great extent (Nahl, 1998; Lorigo et al., 2008). Thus, it would be very interesting to investigate how different search situations influence the task-induced affect all the subsequent search process and emotional outcomes. In addition, further research could be oriented toward examining the relationships between the different stages of the search process, taking into account the effects of the initial affective states on the intensity of the emotions during the search process and the latter perceptions of success and effort.

References

- ALBA, J., LYNCH, J., WEITZ, B., JANISZAWSKI, C., LUTZ, R., SAWYER, A. AND WOOD, S. (1997). "Interactive home shopping: consumer, retailer, and manufacturer incentives to participate in electronic marketplaces", *Journal of Marketing*, Vol. 61 n° 3, pgs. 38-53.
- ALEXA (2010a), "Top Sites in Spain", available from: <http://www.alexa.com/topsites/countries/ES> (retrieved on April 29th 2010).
- ALEXA (2010b), "Top 500 global sites", available from: <http://www.alexa.com/topsites> (retrieved on April 29th 2010)
- ARNOLD, M.J. AND REYNOLDS, K.E. (2003), "Hedonic shopping motivations", *Journal of Retailing*, Vol. 79, n° 2, pgs. 77-95.
- ASOCIACIÓN ESPAÑOLA DE COMERCIO ELECTRÓNICO Y MARKETING RELACIONAL –AECOM- (2009), "Estudio sobre comercio electrónico b2c 2009", available from: <http://www.red.es/media/registrados/2009-10/1256816746333.pdf?acceptacion=8686d2aacf93732ad9c39ce7ba5f0018>, (retrieved on May 5th 2010)
- BAGOZZI, R.P., BAUMGARTNER, H. AND PIETERS, R. (1998), "Goal-directed emotions", *Cognition and Emotion*, Vol. 12, n° 1, pgs. 1-26.
- BAGOZZI, R.P., GOPINATH, M. AND NYER, P.U. (1999), "The role of emotions in marketing", *Journal of the Academy of Marketing Science*, Vol. 27, n° 2, pgs. 184-206.
- BAUMGARTNER, H., PIETERS, R. AND BAGOZZI, R.P. (2008), "Future-oriented emotions: Conceptualization and behavioral effects", *European Journal of Social Psychology*, Vol. 38, n° 4, pgs. 685-696.
- BECHWATI, N.N. AND 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*, Vol. 13, n° 1-2, pgs. 139-148.
- BETTMAN, J.R. (1979), *An information processing theory of consumer choice*. Reading, Addison-Wesley, MA.

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- BILAL, D. AND KIRBY, J. (2002), "Differences and similarities in information seeking: Children and adults as Web users", *Information Processing and Management*, Vol. 38, n° 5, pgs. 649-670.
- BRODER, A. (2002). "A taxonomy of web search", *SIGIR Forum*, Vol. 36, n° 2, pp. 3-10.
- BROWNE, G.J., PITTS, M.G. AND WETHERBE, J. (2007), "Cognitive stopping rules for terminating information search in online tasks", *MIS Quarterly*, Vol. 31, n° 1, pgs. 89-104.
- COMSCORE (2006), "ComScore Media Metrix et NetRatings", available from: <http://sites.google.com/site/buhardillaoscura/parts-marche-2006-02.png> (retrieved on April 29th 2010).
- COMSCORE (2009), "ComScore's qSearch 2.0", available from: <http://www.marketingcharts.com/categories/search-engine-share-of-visits/> (retrieved on April 29th 2010).
- CLORE, G.L. AND HUNTSINGER, J.R. (2007), "How emotions inform judgment and regulate thought", *TRENDS in Cognitive Sciences*, Vol. 11, n° 9, pgs. 393-399.
- CREYER, E.H. AND KOZUP, J.C. (2003), "An examination of the relationships between coping styles, task-related affect, and the desire for decision assistance", *Organizational Behavior and Human Decision Processes*, Vol. 90, n° 1, pgs. 37-49.
- DAUGHERTY, T., LI, H. AND BIOCCA, F. (2008), "Consumer learning and the effects of virtual experience relative to indirect and direct product experience", *Psychology & Marketing*, Vol. 25, n° 7, 568-586.
- ÉTHIER, J., HADAYA, P., TALBOT, J. AND CADIEUX, J. (2006), "B2C web site quality and emotions during online shopping episodes: An empirical study", *Information and Management*, Vol. 43, n° 5, pgs. 627-639.
- ÉTHIER, J., HADAYA, P., TALBOT, J. AND CADIEUX, J. (2008), Interface design and emotions experienced on B2C Web sites: Empirical testing of a research model. *Computers in Human Behavior*, Vol. 24, n° 6, pgs. 2771-2791.
- FESTINGER, L. (1957), *A Theory of Cognitive Dissonance*, Row Peterson, Evanston, IL.
- IORE, A.M., KIM, J. AND LEE, H.H. (2005), "Effect of image interactivity technology on consumer responses toward the online retailer", *Journal of Interactive Marketing*, Vol. 13, n° 3, pgs. 38-53.
- FRIJDA, N.H. (1987), "Emotion, cognitive structure, and action tendency", *Cognition and Emotion*, Vol. 1, n° 2, pgs. 115-143.
- GARBARINO, E.C. AND EDELL J.A. (1997). "Cognitive effort, affect, and choice", *Journal of Consumer Research*, Vol. 24, n° 2, pgs. 147-158.
- GARG, N., INMAN, J.J. AND MITTAL, V. (2005), "Incidental and task-related affect: A re-inquiry and extension of the influence of affect on choice", *Journal of Consumer Research*, Vol. 32, n° 1, pgs. 154-159.
- HAIR, J.F.JR., ANDERSON, R.E., TATHAM, R.L., AND BLACK, W.C. (1998), *Multivariate data analysis*, Prentice Hall, Englewood Cliffs, NJ.
- HÄUBL, G. AND TRIFTS, V. (2000), "Consumer decision making in online shopping environments: The effects of interactive decision aids", *Marketing Science*, Vol. 19, n° 1, pgs. 4-21.
- HUANG, P., LURIE, N.H. AND MITRA, S. (2009), "Searching for experience on the Web: An empirical examination of consumer behavior for search and experience goods", *Journal of Marketing*, Vol. 73, n° 2, pgs. 55-69.
- JANSEN, B.J., BOOTH, D.L. AND SPINK, A. (2008), "Determining the informational, navigational, and transactional intent of Web queries", *Information Processing and Management*, Vol. 44, n° 3, pgs. 1251-1266.
- KLEIN, L.R. (2003), "Creating virtual product experiences: the role of telepresence", *Journal of Interactive Marketing*, Vol. 17, n° 1, pgs. 41-55.
- KLEIN, L.R. AND FORD, G.T. (2003), "Consumer search for information in the digital age: an empirical study of prepurchase search for automobiles", *Journal of Interactive Marketing*, Vol. 17, n° 3, pgs. 29-49.
- KOZUP, J.C. AND CREYER, E.H. (2006), "Boundary conditions of the impact of a hypervigilant coping style on the subjective decision-making experience", *Psychology & Marketing*, Vol. 23, n° 11, pgs. 905-925.
- KUHLTHAU, C.C. (1991), "Inside the search process: Information seeking from the user's perspective", *Journal of the American Society for Information Science*, Vol. 42, n° 5, pgs. 361-371.
- KUO, F.Y., HSU, C.W. AND DAY, R.D. (2009), "An exploratory study of cognitive effort involved in decision under framing-an application of the eye-tracking methodology", *Decision Support Systems*, Vol. 48, n° 1, pgs. 81-91.
- LAROS, F.J.M. AND STEENKAMP, J.B.E.M. (2005), "Emotions in consumer behaviour: A hierarchical approach", *Journal of Business Research*, Vol. 58, n° 10, pgs. 1437-1445.
- LEECH, N.L., BARRETT, K.C. AND MORGAN, G.A. (2008). *SPSS for intermediate Statistics. Use and interpretation*, Psychology Press (3rd ed.), New York.

- LORIGO, L., HARIDASAN, M., BRYNJARSDÓTTIR, H., XIA, L., JOACHIMS, T., GAY, G., GRANKA, L., PELLACINI, F. AND PAN, B. (2008), "Eye tracking and online search: Lessons learned and challenges ahead" *Journal of the American Society for Information Science and Technology*, Vol. 59, n° 7, pgs. 1041-1052.
- LOURO, M.J., PIETERS, R., AND ZEELENBERG, M. (2005), "Negative returns on positive emotions: The influence of pride and self-regulatory goals on repurchase decisions", *Journal of Consumer Research*, Vol. 31, n° 3, pgs. 833-840.
- LUCE, M.F. (1998), "Choosing to avoid: Coping with negatively emotions-laden consumer decisions", *Journal of Consumer Research*, Vol. 24, n° 4, pgs. 409-433.
- LURIE, N.H. (2004), "Decision making in information-rich environments: The role of information structure", *Journal of Consumer Research*, Vol. 30, n° 1, pgs. 473-486.
- MACINNIS, D.J., AND MELLO, G.E. (2005), "The concept of hope and its relevance to product evaluation and choice", *Journal of Marketing*, Vol. 69, n° 1, pgs. 1-14.
- MANO, H. AND OLIVER, R.L. (1993), "Assessing the dimensionality and structure of the consumption experience: Evaluation, feeling, and satisfaction", *Journal of Consumer Research*, Vol. 20, n° 3, pgs. 451-466.
- MATTILA, A. AND WIRTZ, J. (2000), "The role of preconsumption affect in postpurchase evaluation of services", *Psychology & Marketing*, Vol. 17, n° 7, pgs. 587-605.
- MARKETING CHARTS (2010), "Top 10 Online Retail Categories Based on Average Order Size", available from <http://www.marketingcharts.com/direct/top-10-online-retail-categories-by-order-size-march-2010-12798/> (retrieved on 5th May 2010)
- MENON, S. AND KAHN, B. (2002), "Cross-category effects of induced arousal and pleasure on the internet shopping experience", *Journal of Retailing*, Vol. 78, n° 1, pgs. 31-40.
- NAHL, D. (1998), "Learning the Internet and the structure of information behavior", *Journal of the American Society for Information Science*, Vol. 49, n° 11, pgs. 1017-1023.
- NAHL, D. (2004), "Measuring the affective information environment of Web searchers", in *Proceedings of the 67th ASIS&T Annual Meeting*, Vol. 41, pgs. 191-197.
- NAMBISAN, S. AND BARON, R.A. (2007), "Interactions in virtual customer environments: Implications for product support and customer relationship management", *Journal of Interactive Marketing*, Vol. 21, n° 2, pgs. 42-62.
- NYER, P.U. (1997), "A study of the relationships between cognitive appraisals and consumption", *Marketing Science*, Vol. 25, n° 4, pgs. 296-304.
- OLIVER R.L. (1993), "Cognitive, affective, and attribute bases of the satisfaction response", *Journal of Consumer Research*, Vol. 20, n° 3, pgs. 418-430.
- OULASVIRTA, A.N., HUKKINEN, J.P. AND SCHWARZ, B. (2009), "When more is less: The paradox of choice in search engine use" In *Proceedings of the 32nd international ACM SIGIR conference on Research and development in information retrieval*, Boston, MA, USA, pgs. 516-523.
- PAN, B., HEMBROOKE, H., JOACHIMS, T., LORIGO, L., GAY, G. AND GRANKA, L. (2007), "In Google we trust: Users' decisions on rankd, position, and relevance", *Journal of Computer-Mediated Communication*, Vol. 12, n° 3, available from <http://jcmc.indiana.edu/vol12/issue3/pan.html>. (retrieved on April 29th 2010)
- PAYNE, J.W., BETTMAN, J.R. AND LUCE, M.F. (1996), "When time is money: Decision behavior under opportunity-cost time pressure", *Organizational Behavior and Human Decision Processes*, Vol. 66, n° 2, pgs. 131-152.
- PETERSON, R.A. AND MERINO, M.C. (2003), "Consumer information search behavior and the Internet", *Psychology & Marketing*, Vol. 20, n° 2, pgs. 99-121.
- PEW INTERNET RESEARCH (2009), "Daily Internet Activities, 2000-2009", available from <http://www.pewinternet.org/Trend-Data/Daily-Internet-Activities-20002009.aspx> (retrieved on February 15th 2010)
- PIETERS, R. AND WARLOP, L. (1999), "Visual attention during brand choice: the impact of time pressure and task motivation", *International Journal of Research in Marketing*, Vol. 16, n° 1, pgs. 1-16.
- PRATT, J.A., MILLS, R.J. AND KIM, Y. (2004), "The effects of navigational orientation and user experience on user task efficiency and frustration levels", *The Journal of Computer Information Systems*, Vol. 44, n° 4, pgs. 93-100.
- PUNJ, G. AND STEWART, D. (1983), "Cluster analysis in marketing research: review and suggestions for application", *Journal of Marketing Research*, Vol. 20, n° 2, pgs. 134-148.
- PUNJ, G. AND MOORE, R. (2009), "Information search and consideration set formation in a web-based store environment", *Journal of Business Research*, Vol. 62, n° 6, pgs. 644-650.
- QUINN, B. (2003), "Overcoming psychological obstacles to optimal online search performance", *The Electronic Library*, Vol. 21, n° 2, pgs. 142-153.

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- RAGHUNATHAN, R. AND PHAM, M.T. (1999), "All negative moods are not equal: Motivational influences of anxiety and sadness on decision making", *Organizational Behavior and Human Decision Processes*, Vol. 79, n° 1, pgs. 56-77.
- RANGASWAMY, A., GILES, C.L. AND SERES, S. (2009), "A strategic perspective on Search Engines: Thought candies for practitioners and researchers", *Journal of Interactive Marketing*, Vol. 23, pgs. 49-60.
- REYNOLDS, K.E., FOLSE, J.A.G. AND JONES, M.A. (2006), "Search regret: Antecedents and consequences", *Journal of Retailing*, Vol. 82, n° 4, pgs. 339-348.
- RICHINS, M.L. (1997), "Measuring emotions in the consumption experience", *Journal of Consumer Research*, Vol. 24, n° 2, pgs. 127-146.
- ROSEMAN, I.J. (1991), "Appraisal determinants of discrete emotions", *Cognition and Emotion*, Vol. 5, n° 3, pgs. 161-200.
- ROSEMAN, I.J., ANTONIOU, A.A., AND JOSE P.E. (1996), "Appraisal determinants of emotions: Constructing a more accurate and comprehensive theory", *Cognition and Emotion*, Vol. 10, n° 3, pgs. 241-277.
- ROWLEY, J. (2000), "Product search in e-shopping: A review and research propositions", *Journal of Consumer Marketing*, Vol. 17, n° 1, pgs. 20-35.
- SHAVER, P., SCHWARZ, J., KIRSON, D. AND O'CONNOR C. (1987), "Emotion knowledge: Further exploration of a prototype approach", *Attitudes and Social Cognition*, Vol. 52, n° 6, pgs. 1061-1086.
- SMITH, C.A. AND ELLSWORTH, P.C. (1985), "Patterns of cognitive appraisal in emotion", *Journal of Personality and Social Psychology*, Vol. 48, n° 4, pgs. 813-838.
- U.S. CENSUS BUREAU (2009), "Measuring the electronic economy", available from from <http://www.census.gov/econ/estats/index.html> (retrieved on February 15th 2010)
- VISAUTA, B. AND MARTORI, J.C. (2003), *Análisis Estadístico con SPSS para Windows*, McGraw Hill, Madrid.
- WANG, P., HAWK, W.B. AND TENOPIR, C. (2000), "Users' interaction with World Wide Web resources: An exploratory study using a holistic approach", *Information Processing and Management*, Vol. 36, n° 2, pgs. 229-251.
- WATSON, D., CLARK, L.A. AND TELLEGEN, A. (1988), "Development and validation of brief measures of positive and negative affect: The PANAS scales", *Journal of Personality and Social Psychology*, Vol. 54, n° 6, pgs. 1063-1070.
- WEDEL, M AND PIETERS, R. (2006), "Eye tracking for visual marketing", *Foundations and Trends in Marketing*, Vol. 1, n° 4, pgs 231-320.
- WOLFINBARGER, M. AND GILLY, M.C. (2001), "Shopping online for freedom, control, and fun", *California Management Review*, Vol. 43, n° 2, pgs. 34-55.
- ZEELLENBERG, M. AND PIETERS, R. (2006), "Feeling is for doing: A pragmatic approach to the study of emotions in economic behavior", In D. De Cremer, M. Zeelenberg and K. Murnighan (Eds.), *Social Psychology and Economics*, Erlbaum, Mahwah, New Jersey, pgs. 117-137.
- ZHANG, S. AND FITZSIMONS, G.J. (1999), "Choice-process satisfaction: The influence of attribute alignability and option limitation", *Organizational Behavior and Human Decision Processes*, Vol. 77, n° 3, pgs. 192-214.
- ZHOU, L., DAI, L. AND ZHANG D. (2007), "Online Shopping Acceptance Model – A Critical Survey of Consumer Factors in Online Shopping", *Journal of Electronic Commerce Research*, Vol. 8, n° (1), pgs. 41-62.