

The Involvement Construct in Product Search Queries: Click Behavior, the Second Opinion Effect and Conversion Rates

Thomas van Niele

Student Number: 312907

Supervisor: Sarah van der Land, PhD

Second Reader: Ericka Menchen-Trevino, PhD

Erasmus School of History, Culture & Communication

Erasmus University Rotterdam

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“The ultimate search engine would basically understand everything in the world, and it would always give you the right thing. And we’re a long, long ways from that.”

- Larry Page (Co-founder of Google)

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Thank you all,

Thomas

Abstract

Search engines can decisively be regarded as the modern-day yellow pages. Even though a large proportion of search engines is determined by automated search algorithms, it is the user that issues a specific search query and selects the links that are deemed relevant. An overwhelming amount of information is presented to us through most search engines, which makes the question of how we orient ourselves and how we retrieve information ever more important. This experimental research aimed to unravel some of the dynamics that are at play when consumers interact with search engines. A 2 (involvement: high involvement versus low involvement) x 2 (corresponding sponsored listings versus non-corresponding sponsored listings) between subjects design was conducted among predominantly university students. Departing from the Elaboration Likelihood Model, high- and low involvement situations were simulated to evoke high- and low levels of elaboration with the participants. All participants were assigned with the same search query, and exposed to one of two fixed search engine results pages. In the high involvement condition, participants seemed more likely to scrutinize the search results list and not to blindly follow a peripheral cue such as search ranking, which resulted in them more often opting for a search result that was located at the bottom of the page. The 'second opinion effect', a said 'click aphrodisiac' for consumers looking up products, did not manifest itself as a peripheral cue in this research. Conversion rates proved to be higher for the bottom organic search results. Overall there was a tendency among respondents to avoid sponsored listings, which also returned the lowest conversion rates. This research provided new theoretical insights in to the search engine dynamics, connecting heuristic and systematic processing to SERP interaction. For managers, it provides valuable insights into valuable marketing variables pertaining to search engine marketing and search engine optimization. This is especially relevant given the increased spend in search-engine based advertising in recent years.

Keywords: *search query; involvement; organic search; sponsored search; conversion rates; second opinion effect*

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1. Introduction

In recent years search engines such as Google, Bing, and Yahoo have become important intermediaries between consumers and firms (Lee, 2013). In the consumer's quest for products and services, they depart from search queries – specific or general – in which they trust to lead them in the right direction on vast space that is the internet. Search engines can decisively be regarded as the modern-day yellow pages, especially Google – with a market share of 67% (Lee, 2013) – is a refuge for information that we have massively adopted as an important pillar in our daily conduct. Even though a large proportion of search engines is determined by automated search algorithms, it is the user that issues a specific search query and selects the links that are deemed relevant. An overwhelming amount of information is presented to us through most search engines, which makes the question of how we orient ourselves and how we retrieve (relevant) information ever more important (Hargittai, 2000; Pollock & Hockley, 1997; Wirth et al., 2007).

Every day millions of users interact with search engines by issuing and reformulating search queries, following links, clicking on advertisements etc. (Agichtein, Brill, & Dumais, 2006). These interactions constitute valuable feedback for search engine operators, advertisers and researchers. In the past 15 years a vast body of research revolving around user interaction with search engines emerged, largely based on click-through rates, search queries, page views and conversion rates, using large-scale panel data provided by large retailers (Agichtein, Brill, & Dumais, 2006). Other research angles had an experimental design using heat mapping and eye tracking analysis (Granka et al., 2004; Joachims, Granka, Pan, Hembrooke, & G., 2005; Wirth et al., 2007). Conversion rates are an important aspect of search engine research. Conversions are purchases as a result from clicks on search engine result pages, which are important figures for search engine operators in determining the direct commercial effectiveness of their search engine, and constitute the direct return on investment for search engine marketers (Ghose & Yang, 2009).

A more recent development in search engines is the occurrence of 'sponsored' search advertisements, in which advertisers can buy a place in the sponsored section of the search results pertaining to (a) specific keyword(s). Apart from enormous sources of revenue for Google and its competitors, this resulted in a new stream of research in terms of the interplay between consumers, sponsored search results, regular ('organic') search results, and conversions rates (Rutz & Bucklin, 2007; Danescu-Niculescu-Mizil, 2010; Yang & Ghose, 2010).

These researches are also based on large-scale panel data revolving around click-through rates, search queries, page views and conversion rates, which are often referred to as 'implicit' feedback from the user.

No research as of yet has focused on the interaction of consumers with organic and sponsored search results in light of the Elaboration Likelihood Model. This research will make a venture into the central and peripheral fashions of information processing on search engine result pages, which will henceforth be abbreviated SERP. Whereas one might assume that looking up product information or product websites includes an exclusively rational process, previous literature in the field of SERPs as well as in the field of Information processing points to the notion that there are multiple forces at play in the presentation and processing of search results (Agichtein et al., 2006; Ghose & Yang, 2009). In light of ELM, it is assumed that people start (reasonably) active and cognitive processing of information when they are voluntarily exposed to information (Cho, 1999). Active cognitive processing happens on a more conscious level than involuntary exposure because people perform an action, such as a self-initiated search (Cho, 1999). But what happens exactly when different stimuli are at play? One of those stimuli might be the second opinion effect, which entails the presence of one search result in both search advertisements and normal (organic) search results (Yang & Ghose, 2010). We know for a fact that we are not purely rational creatures (Ruth, 1992), or rational consumers for that matter (Hanf & von Wersebe, 1994). The general aim of this research is to walk the paths of purchase that organic and sponsored search lead us on, and to explore how these different paths influence attitudes pertaining to purchase intent, or conversion. Gaining a better understanding of these specific search engine dynamics will not only aid marketing researchers in measuring the attitudinal impact of marketing variables in organic and sponsored search, but also helps managers in developing more effective search engine strategies. Therefore, the following research question is formulated:

"To what extent do corresponding sponsored- and organic search results reinforce one another and what listings are most likely to lead to conversion?"

In order to answer this research question, first the theoretical framework is put forward, within this framework the key concepts and variables will be explained more thoroughly by elaborating on existing documents and scholarly literature. Following from the theoretical framework, hypotheses are formulated. After that a method section is offered in which the method of inquiry is put forward, along with the experimental measures that were

used. The method section is followed by the results section. Here the hypotheses will be tested through statistical inferences from the data that was collected. After that, the discussion section will elaborate on the findings and propose the theoretical and managerial implications this research has. Finally, possible directions for future research will be proposed.

2. Theoretical Framework

Whether we are looking up information, pursuing a particular item, or looking up ourselves just for the heck of it, we are inextricably bound up with the practice of online searching. This is no different when we perform acts of consumerism, particularly when taking into account the advent of e-commerce in the past decade, in which search engines have positioned themselves as very useful and highly relevant ‘infomediaries’, uniting buyers and suppliers to meet and match their common needs (Grover & Teng, 2001).

This theoretical framework consists of several subsections in which each of the variables will be discussed using documentation and scholarly literature. The notion of bounded rationality and the elaboration likelihood model are put forward, which address the heuristic and systemic dualism that is at the core of this research. The first mediating variable is search ranking, which revolves around the respective ranks in which search listings are placed on the SERP. This is also important with regard to the organic or sponsored nature of the search results, which distinguishes between the regular automated search results generated by the search engine’s algorithm, and the sponsored search results which are paid for by search engine advertisers. All these are schematically put together in the conceptual model, connecting the hypotheses and variables, and concluding this chapter.

2.1 The Google Algorithm

Google’s organic algorithm judges pages on the basis of quality and relevance, which means that in a commercial sense it is up to firms to ensure that their websites outperform other websites that are relevant for a specific search query. This business conduct is referred to as search engine optimization (SEO). Google’s organic search algorithm consists of three primary components: linguistic cues, pagerank cues, and user (behavior) cues (Granka, 2010).

The cornerstone for search ranking is term frequency. This entails the process of parsing a search query and subsequently matching it with terms contained in online documents. The search engine attempts to infer user intent from the search query, and then

identifies the webpages that seem most relevant for the user. To be more specific: search engines work under the assumption that if a given search term occurs more often in an online document, this document is likely to be more useful to the user as opposed to online documents in which the search term occurs less often. Search engines measure that count against how frequently a search term appears across the Web as a whole. Search engines control for document length, which normally would be more likely to end up in the top search results, by normalizing term frequency against overall document length. In this process, synonyms and relevant phrases are identified in a similar fashion. (Manning, Raghavan, & Schütze, 2008).

The digital structure of a webpage also affords important properties to rank results. Using so-called metadata, specific properties of each document are identified. Prominence of matching phrases is identified by looking at how matching phrases are featured in the document. Metadata consist of tags and as such enable search engines to identify titles, headings, and images, all of which infer significance of matching phrases. This subsequently has implications not just for the ranking of an online document, but also for the way this document is presented in the search results (Manning, Raghavan, & Schütze, 2008).

Search engines get immediate 'implicit' feedback from the user in terms of search queries, content selection, and website access, and rely on such feedback to shape the ranking algorithm so that it will generate the best – and most helpful – search results. The behaviors most leveraged by search engines are 'reading time on webpages', 'user clicks', and 'query reformulation' (Granka, 2010). Reading time on webpages determines how much time a user spends on a specific webpage (Kelly & Teevan, 2003). User clicks provide useful data because users have to click at least once to obtain their desired information, which means that this a good indicator of what information presented was most useful to the user (Huffman & Hochster, 2007). The aggregate click data can be leveraged to promote or demote certain websites. Query reformulation entails the subsequent query choices by a user, including when a searcher adds more words to the search query (which is especially the case for single-word queries). This feedback informs search engines what the user initially intended with his first query. Other metrics that are used such as 'page scrolling' and 'bookmarking' are of less practical use for search engine algorithms (Kelly & Teevan, 2003).

2.2 Organic vs. Sponsored Listings

Within the realm of search ranking, an important distinction can be made between 'organic' and 'paid' (or sponsored) search results, in which the organic search results are established based on, in short, the accumulated popularity and relevance of a website within the boundaries of the search query that is issued (Danescu-Niculescu-Mizil, et al., 2010). Paid (or sponsored) search results, on the other hand, consists of the relevant advertisements that appear on the search results page in a marked sponsored section above and alongside organic (nonsponsored) search results (Rutz & Bucklin, 2007). Sponsored search is gaining ground as the largest source of revenue for search engines (Ghose & Yang, 2009). Whereas organic search is aimed at satisfying the user's (most likely) intent as inferred from the search query, paid search advertisements partially diverge focus towards the potential commercial interest that a particular search query has (Ghose & Yang, 2009).

Organic search results are ranked on relevance, while in sponsored search relevance and revenue conjoin to form the formula for search ranking (Danescu-Niculescu-Mizil et al., 2010). Another difference is the content of the abstracts, the short text that is included with the search result. Whereas organic search result listings produce automatically generated snippets created by a summarization algorithm, the paid search listing allows for advertisers to manually craft a short advertising slogan of some sort. This small body of text is often referred to as the ad creative (Danescu-Niculescu-Mizil, et al., 2010).

Advertising in search is deemed as an effective manner to reach consumers. Danahar and Mullarkey (2003) discovered that user involvement is crucial in understanding the effectiveness of online advertisements, and that users that are in a goal-directed state of mind are less likely to recognize and recall online advertisements. According to Cho (1999) this occurs because the perception of advertising as clutter, earlier negative experiences with advertisements, and impediment of the goal that the user set out to achieve, are major reasons for people to avoid and ignore online advertisements. Of these three causes, perceived goal impediment was found to be the most significant antecedent explaining online advertising avoidance. The authors recommended advertisers to use highly customized and context-congruent advertising messages in order to reduce perceived goal impediment.

Research by Moore et al. (2005) pointed in the same direction with their findings that website-advertisement congruity has favorable effects on consumer attitudes. Through paid

search advertisements many of the abovementioned issues addressed: they are congruent with the user's objective and as such they are not perceived as intrusions or goal impediments (Rutz & Bucklin, 2007). However, previous research suggests that users tend to have a bias against sponsored search results, this is referred to as the non-commercial bias (Danescu-Niculescu-Mizil et al., 2010).

2.3 Bounded Rationality and the Elaboration Likelihood Model

The idea that humans not always make extensive use of their cognitive abilities before making a decision is supported by the notion of 'bounded rationality', which posits that humans do not consider all possible outcomes before making a decision, either due to a lack of time, cognitive constraints, or both (Simon, 1955). Humans thus operate rationally within the boundaries they are given. One needs to apply full cognitive effort, in which all alternatives along with their attributes are completely considered, in order to come to a fully reasoned decision. This 'ideal' situation should lead to an optimal outcome. This strategy, however, is not regarded as the superior strategy per se (Gigerenzer, 2004). Simpler and faster strategies, which take less cognitive effort but are still sufficient, are preferred most of the time. Simon (1955) used the term 'satisficing' decision to describe the notion that humans are often satisfied with outcomes that are less than optimal for as long as they are sufficiently adhering to the goal they set out to fulfill (Newell & Simon, 1972). Moreover, we as humans are restricted to more simplified strategies due to our limited cognitive capacity for information processing (Simon, 1955). In pursuit of the ideal trade-off between cognitive efforts and efficient results, we select the most suitable strategy or heuristic that is available in our arsenal, acting thusly as adaptive decision makers (Payne et al., 1993).

Two opposed ideal modes of information processing are provided by the human brain (Chen & Chaiken, 1999). These modes are dependent on several external and internal factors. The Elaboration Likelihood Model (ELM) and the Heuristic-Systematic Model (HSM) describe these processing modes as, respectively, the central vs. peripheral route and systematic vs. heuristic processing (Chen & Chaiken, 1999). In both descriptions a specific distinction is made between cognitively elaborated and systematic information processing on the one hand, and non-elaborated, heuristic processing on the other. Processing information in a systematic way would imply a comprehensive, in-depth processing of all the available information, whereas heuristic information processing would involve cues that signal quality or validity (Chen &

Chaiken, 1999). The two different processing modes that are posited by ELM and HSM are seen as ideal types, which means that in reality the way in which humans process information can vary in degree of systematic (or heuristic) information processing between the two poles on the continuum (Chen & Chaiken, 1999).

The manner of processing that is selected by an individual is dependent on internal and external factors. The internal factors consist of the individual's cognitive abilities (i.e. prior knowledge), and his/her motivation to invest time and cognitive effort. Among the external factors are the complexity of the information, characteristics inherent to the information, and situational characteristics (Chaiken, Liberman, & Eagly, 1989).

If information is evaluated as well-constructed, convincing and reliable, it may be received favorably even in the case when the receiver's original disposition was opposing (Petty & Cacioppo, 1986). In the case that the elaboration process results in favorable thoughts, the information is likely to be accepted and congruence of both the information and the receiver's position is achieved (Petty & Cacioppo, 1986). The presented information is likely to be rejected when unfavorable thoughts result from the consideration of the merits of the information. In order for information to be processed centrally, the receiver must be able and willing to do so. Processes on the peripheral route do not involve cognitive processing of the information's merits. The peripheral route is more focused on environmental characteristics, among which are the perceived credibility of the source, the quality of the presentation of the information, and the attractiveness of the source (Petty & Cacioppo, 1986). Peripheral routes are often used when the argument of the information lacks evidence or is weak in general (Petty & Cacioppo, 1986). So the peripheral route accepts or rejects information based on external cues rather than cognition. Often this is used when the receiver is unable to process the message due to complexity issues or audience immaturity. (Petty & Cacioppo, 1986). Translated to consumer interaction with SERPs, opting for a specific search result is described as a 'click', and a distinction is made between a click as a result of central processing (high elaboration) and peripheral processing (low elaboration). Pertaining to the research at hand, the first hypothesis can be formulated:

H1: Situations of high consumer involvement are less likely to lead to high ranked (peripheral) clicks than situations of low consumer involvement.

2.3 User Interaction with SERPs

Overall, web information behavior has seemed quite unsystematic in the sense that many relevant factors are ignored and many irrational decisions are made due to the fact that users are, as with every decision, subject to time constraints and cognitive constraints (Agosto, 2002; Pharo & Järvelin, 2004). Baring in mind the notion of the economy-minded individual, it seems likely that a user on the web processes information in a more or less heuristic fashion. This is in contrast with the empirical findings suggesting that more systematic processing occurs when the complexity of a situation increases (Chen & Chaiken, 1999). The same ambiguity emerges when taking into account the influence of user characteristics. Whereas it seems likely that users with more experience on the Web, high domain knowledge, and more motivation will be more systematic and elaborate in going about their decision process (Eveland & Dunwoody, 1998), there are also empirical findings suggesting that users with more Web experience are more inclined to flexibly mix heuristic and systematic decision-making routines (Bilal & Kirby, 2002).

Even though to a large extent the processing of information is quite similar to the processing of advertisements on the internet, there are some key differences which are of importance for this research. Cho's (1999) research on consumer information processing of banner advertisements highlights some key aspects. The author situates the ELM in the process of banner advertising exposure on the internet, in which the first step in the process is exposure to the vehicle on which the advertisement is placed. During this exposure consumers might be exposed to banner ads which are mediated by an advertising vehicle. It is not a far stretch from his research towards the topic at hand, in which the vehicle is Google's SERP, following from a particular search query that was issued by a user.

The level of product and personal involvement is regarded as the most important determining factor of clicking an online banner advertisement. Whereas traditionally involvement in ELM was conceptually defined as the "[...] 'motivation' and 'ability' to process advertising messages" (Hoan, 1999, p. 36), in banner advertisements only the motivation of processing the advertising message would be appropriate because banner advertisements only contain so much information. In short, motivation to process ad content is the most important determining factor for clickability of an advertisement (Cho, 1999).

The eventual clicking on advertisements facilitates voluntary exposure and is highly dependent on the level of involvement the consumer has on a personal and product level. In

the case of high involvement, a consumer is highly motivated to process messages due to personal relevance, product category involvement, and high need for cognition (Cho, 1999). In this type of situation it is likely for consumers to demand for more information in order to satisfy their needs for information and cognition. This is called the central route to voluntary exposure (Cho, 1999). In low-involvement situations consumers have low involvement to process advertising messages because of low personal relevance and low need for cognition (Cho, 1999). This means that consumers are less likely to request for more information (i.e., click on advertisement). The route these consumer follow to an advertisement is a different one: the peripheral route to voluntary exposure. This means that peripheral cues influence clickability in low-involvement situations. In the case of banner ads these cues might be large-sized banners, bright colors or attention-getting animations. Translated to this research, it is interesting to focus on the extent to which a consumer can be regarded as highly involved, and whether central or peripheral cues are favored in the light of their eventual choice.

Cho (1999) discusses some other important mediating variables that affect voluntary exposure. Relevancy between vehicle and advertisement is one of them. Advertisements are believed to have the maximum effect when they match the content of the advertising vehicle. In other words: the more congruent and relevant advertisements are with respect to the rest of the page, the more favorable consumer are likely to respond to them because the advertisement matches their interest. In this case this would mean that information presented in the search results must be congruent with the search query the user issued, something which is likely to occur considering the algorithms that search engines use. In high-involvement situations, where attitude is changed on the basis of active cognitive processing, it is more likely to endure and to predict behavior compared to situations of low elaboration (Cho, 1999). The peripheral attitude change that is created in low-involvement situations is less likely to endure and far more difficult to predict (Cho, 1999).

Yang and Ghose (2010) found that click-through rates and conversion rates tend to be highest for the top search results, and decrease as one goes down the list of a SERP. The authors also established that the simultaneous presence of organic and paid search listings of a particular brand is mutually beneficial for click-through rates on both search listings. This positive interdependence leads the authors to the conclusion that, in online customer acquisition campaigns, both Search Engine Marketing and Search Engine Optimization play an important part. Their empirical findings suggest that click-through rates on organic listings are

positively interdependent with click-through rates on sponsored listings. This positive interdependence goes both ways, though it is asymmetric in the sense that the positive impact of organic listings on paid search utility is 3.5 times stronger than the impact of paid search listings on organic search utility (Yang & Ghose, 2010). So the presence of both organic and sponsored search listings is associated with a higher probability of click-throughs for both listings. Yang and Gose's empirical finding is consistent with what is claimed in the trade press, where the 'second opinion effect' is explained to be an encouragement for the user to click on a search listings that is present in both organic and sponsored listings. However, this effect has not been unequivocally confirmed by Yang and Gose's research, for the interdependence between organic and sponsored search listings has only been confirmed on an aggregate scale, meaning that it was merely established that clickthrough rates on one listing, boost clickthrough rates on the other, but not necessarily because of the said 'second-opinion effect' but rather because the respective links receive more clicks, which boosts them in the search rankings. What remains absent in academic literature to date, is whether this second-opinion effect does indeed exist. If it does, it should act as an aphrodisiac, a peripheral cue for consumers. In order to investigate the possible existence of this effect, the following hypothesis is formulated:

H2: Corresponding search results are more likely to receive clicks than non-corresponding search results.

2.4 Conversion

Purchase intention in the realm of search engines is referred to as conversion, as clicks are 'converted' when search queries end up in online purchases (Agichtein et al., 2006). Attitudes are regarded as one of the major factors guiding human behavior, one among which is the purchasing of products (Ajzen, 1985). Behavioral intentions moderate the impact of attitudes on behaviors. A person's decision to perform a behavior is reflected by behavioral intention, and a decision to engage in a particular behavior will only be realized to the extent that this person is in full control of performing the behavior (Ajzen, 1985). That being said, a theoretical can be established between the involvement construct and conversion rates.

In high-involvement situations, where attitude is changed on the basis of active cognitive processing, it is more likely to endure and to predict behavior compared to situations

of low elaboration. The peripheral attitude change that is created in low-involvement situations is less likely to endure and far more difficult to predict (Cho, 1999). Translating this notion toward attitudes pertaining to purchase intent, it can be argued that peripheral clicks are less likely to result in an enduring differential effect on attitude towards purchase intent than are centrally processed clicks. Thus meaning that, even if clicks are generated as a result of ‘second opinion effect’, the low degree of elaboration is less likely to lead to an actual purchase. Following from this, the final hypothesis is: *H3: Centrally processed clicks are more likely to result in conversion than peripherally processed clicks.*

2.5 Conceptual Model & Hypotheses

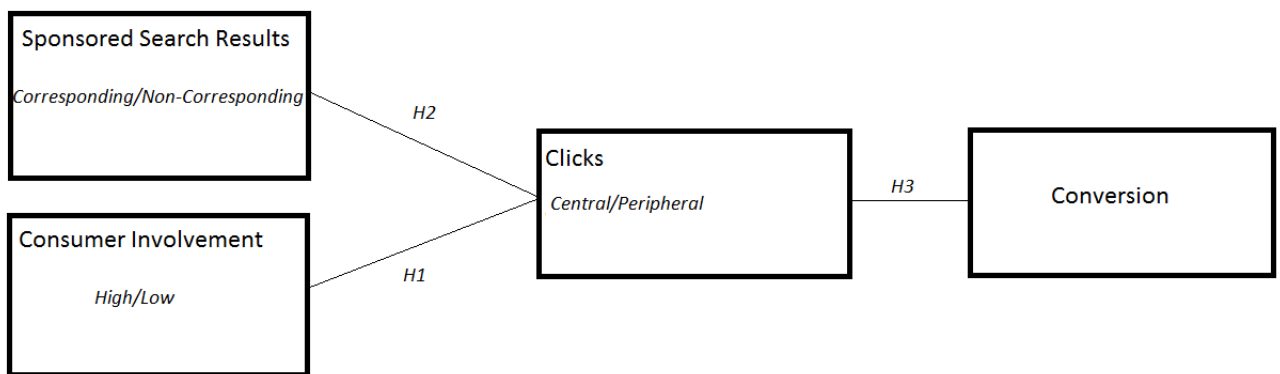


Figure 2.5.1 Conceptual Model

The hypotheses and variables are schematically displayed in figure 1. The sponsored search results independent variable refers to the sponsored listings on the SERP and has 2 conditions, corresponding and non-corresponding. In case of corresponding, the sponsored search results are similar to some of the organic listings on the SERP, in the non-corresponding condition these listings are different from any of the organic listings on the SERP.

The independent variable of consumer involvement is conditioned high and low. In high involvement the consumer is highly involved with the product search query, and in the low involvement condition the consumer is barely involved with the product search query.

Clicks are the mediating independent variable, and vary from centrally processed clicks to peripherally processed clicks. Centrally processed clicks are clicks as a result of high elaboration, and peripheral clicks are clicks as a result of low elaboration.

The final independent variable is conversion, conversion refers to the degree of clicks that result in actual purchase. Even though actual clicks or conversions cannot be measured

in this research, intention pertaining to clicks and purchase behavior can be measured, this will be elaborated on in the method section.

3. Method

3.1 Sample

In order to test the hypotheses, a 2 (involvement: high involvement versus low involvement) x 2 (corresponding sponsored listings versus non-corresponding sponsored listings) between subjects design was conducted among predominantly university students. From this population a convenience sample of students and recently (in the past 5 years) graduated alumni was drawn to participate in the experiment, after which a snowball effect was attempted by asking participants to forward the survey to other people within their network.

In total, 150 respondents participated in this experiment. Their mean age was 28.68 (SD= 10.22), ranging between the age of 19 and 69. A total of 55.3 percent of respondents was male. The sample consisted largely of students (55%) and employees (35.6%), with highest obtained degrees in university (with bachelor's degree accounting for 27.5%, and master's degree accounting for 40.9% of respondents). On average the participants were fairly comfortable with purchasing products online (M= 4.07, SD= .78) and most participants had turned purchasing products online in to somewhat of a habit, reporting on average that they make purchases at least a couple of times a year (M= 2.92, SD= 1.00).

A convenience sample of students was chosen because I have regular access to these people, and in doing so a large-enough sample is most likely to be achieved. Even though this type of sampling did not allow me to control how well the characteristics of the sample match the characteristics of the larger population that I intended to represent, the population consisting largely of students and alumni aged from 20-30 years does to a large extent cover the group of 'digital natives' (aged 18-34), which is a particular technologically literate cohort that frequently makes online purchases (Bennet, Maton, & Kervin, 2008). Moreover, 'backpacks' being the product search query around which the experiment revolved, the sample consisted of a particularly valid group of people, as many students embark on such trips after finishing their bachelor or master's degree.

3.2 Experimental Design

In this 2 (involvement: high involvement versus low involvement) x 2 (corresponding sponsored listings versus non-corresponding sponsored listings) factorial design, participants were randomly assigned to one of the four experimental treatments, which ensured that any differences between the groups were the consequence of chance and not of systematic bias. This in turn maximized the chance for valid outcomes which was undistorted by hidden factors. By means of Facebook and e-mail, people received a link to the online survey.

According to Preston (1982), the perfect advertising effectiveness measure should be related to actual behavior. Similarly the most concrete measure of clicking of search results is looking at users' actual behavior in terms of click-through data. However, with regard to feasibility it was acknowledged that obtaining actual retailer click-through data would be difficult. Therefore this study employed a mental measure of clicking, which entails people's self-reported intention of clicking a search result. Research in the field of advertising effectiveness has employed various mental measures such as recall, self-reported attitude toward the ad and the brand, and purchase intention (Cho, 1999; Preston, 1982), translating this measure to this study is not a far leap and as such did not impair the validity of this research.

For the experiment two different Google search engine results pages were used. These results pages were custom made for this research. In doing so, the SERPs can be optimized for the purpose of the experiment and as such internal validity can be preserved. The search results to which the participants were exposed consisted of sponsored and organic listings including only fictional brands, this eliminated the possibility of participants having preconceived notions which they might have had when actual 'real-life' brands would be comprising the list. This in turn allowed for this research not having to do deal with brand recognition, -affinity, or involvement, having all participants start with a 'clean slate'.

The experiment involved a single product search query across all conditions in which participants were looking to buy a backpack online. The output of the search engine was be somewhat different for all experimental conditions in terms of corresponding sponsored search results, which are the first three search results in the organic search listings. Participants were placed in a situation in which they are looking to buy a backpack online. The choice for a backpack was made because it can be assumed that this is a fairly neutral product

free from any fashion-, trend or brand- related connotations, while it is still a fairly relatable product as many students have traveled or are about to travel sometime in the near future.

Table 3.2.1 2x2 Factorial Design

High Involvement + Corresponding Sponsored listings	High Involvement + Non-corresponding Sponsored listings
Low Involvement + Corresponding Sponsored listings	Low Involvement + Non-corresponding Sponsored Listings

The concept of involvement was central in this experiment. It is conceptualized as the “[...] motivational state of an individual induced by a particular [...] stimulus or situation” (Mitchell, 1979). Within the context of message involvement, intensity and direction are the two apparent dimensions (Mitchell, 1979). Intensity is defined as the level of attention devoted to the message, in which limited attention restricts the amount of elaboration of a message (Laczniak, et al., 1989). Direction revolves around the intended processing strategy and goals of the receiver. Processing information can involve different strategies, in which the individual can adopt evaluative or non-evaluative strategies because there is no immediate or urgent need to critically evaluate the information, or because other stimuli are considered to be of more immediate interest to the receiver (Laczniak et al., 1989).

In consistence with the above conceptualization, the manipulation of involvement along with the corresponding manipulation checks will capture two dimensions: (1) the degree to which specific points of the SERPs are attended to, and (2) the individual’s strategy for information processing.

The goal of high-involvement manipulation, following from the above, is to direct participants to particular aspects of the information presented on the SERPs for the purpose of evoking high elaboration of the information presented. The low-involvement manipulation’s aim, on the other hand, is to limit attention to the SERP and to thereby reduce the possibility of an evaluation of the merits of the presented search results.

Following from the above, the following manipulations were developed. Two experimental conditions involve high involvement, this high involvement is evoked by

informing the participants beforehand that they are to answer several questions after they have been exposed to the search engine results page, this information is not provided for the low-involvement conditions. These experimental conditions are combined with corresponding sponsored listings in one case and non-corresponding sponsored listings in the other. In order to further evoke high involvement, the story that introduces the respondents to their particular situation is very elaborate and lively. They will be placed in a situation in which they are to embark on a backpacking trip across South America, and that they will be walking through the Andes and the Amazon rainforest, meaning that they need a rather large backpack of 45 liters or more. This is in contrast with the introduction for the low-involvement condition, in which respondents are merely informed that they are looking to buy a backpack online. This will manipulate the subject's attention to specific information points on the SERP as well as the strategy for information processing.

3.3 Experimental Measures

In this research, the two independent variables are involvement (high versus low involvement) and sponsored listings (corresponding versus non-corresponding). The dependent variables are the recorded clicks and attitude towards purchase intent. After being exposed to the respective SERPs, respondents are asked about their preferred search result and their interaction with the SERP to which they were exposed. Search results are listed 1 to 10, in which the first is the top sponsored search result listed on the top of the SERP, and 10 is the last organic search result (only the first page of the SERP is displayed), the search results are measured on a nominal scale, in which the search results 1, 2 and 3 constitute the sponsored listings, 4, 5, and 6 comprise the top organic search results, which are either corresponding or non-corresponding with the sponsored listings. Search results 7 through 10 constitute the bottom organic search results on the SERP.

3.3.1 Reliability Analysis Involvement Items

In order to determine whether these manipulations are adequate in impacting subjects' involvement with the SERP, multi-item manipulation checks, similar to those advocated by Andrews (1988), are devised. To assess the 'attention dimension' of involvement, a five-item index was constructed in which each item was measured on a seven-point scale with endpoints "None" (1) and "Very Much (7)". See appendix 'A' for survey items. One item (item

4 of this measure) showed insufficient reliability, and was therefore excluded from the analysis.

In order to test processing strategy, a six-item index with endpoints “Not at all” (1) and “Very Much” (7) was constructed by summing responses for these six items. See appendix ‘A’ for survey items. Cronbach’s alphas of all items are listed in appendix C2. The processing strategy items had high overall reliability, Cronbach’s $\alpha = .95$, as did the items measuring the attention dimension, Cronbach’s $\alpha = .87$.

In order to further assess the reliability of the items for involvement, a principal component analysis was conducted for the items of ‘processing strategy’ and ‘attention dimension’. For ‘processing strategy’, a Monte Carlo simulation in which 1000 datasets were computed showed one significant component with an eigenvalue exceeding the 95th percentile (eigenvalue of 4.81), accounting for 80.13% of total variance. This finding was supported by the scree plot, in which a clear bend is visible after the first component. All items for ‘processing strategy’ were highly correlated with the first component (table of all factor loadings in appendix).

For ‘attention dimension’, a Monte Carlo simulation in which 1000 datasets were computed showed one significant component with an eigenvalue exceeding the 95th percentile (eigenvalue of 2.94), accounting for 73.49% of total variance. This finding was supported by the scree plot, in which a clear bend is visible after the first component. All items for ‘attention dimension’ were highly correlated with the first component.

3.3.2 Reliability Analysis Conversion Items

Subjects were further probed to answer questions regarding their attitude pertaining to purchase intent, or conversion. Purchase intention is quite a common effectiveness measure in advertising research, and the method of asking subjects to evaluate an advertisement and subsequently provide an indication of intention is prevalent throughout scholarly literature (Andrews et al., 1992; Beerli & Santana, 1999). Consequently, an established five-item, seven-point semantic differential scale is used to measure the likelihood that participants would purchase a backpack on the web page of their preferred search result. See appendix for survey items. The purchase intent measures had high reliability (Cronbach’s $\alpha = .92$).

In order to further assess the reliability of the items comprising conversion, a principal component analysis was conducted. A Monte Carlo simulation in which 1000 datasets were computed showed one significant component with an eigenvalue exceeding the 95th percentile (eigenvalue of 3.78), accounting for 75.62% of total variance. This finding was supported by the scree plot, in which a clear bend is visible after the first component. All items for conversion were highly correlated with the first component.

4. Data Analysis and Results

4.2 Involvement Manipulation Check

As a test for the success of the high- and low involvement manipulation in this experiment, 'involvement' variables were computed for the respective measures of involvement - 'processing strategy' and 'attention dimension' – whereby the mean scores were calculated and subsequently subjected to an independent samples T-test with the high- and low involvement groups. Bear in mind that for the 'attention dimension' measure item 4 was excluded altogether due to earlier established unreliability.

The independent samples T-test for 'processing strategy' showed a significant difference for the high involvement group ($M= 4.48, SD= 1.71$), and the low involvement group ($M= 3.31, SD= 1.57$), $t(137.38) = 4.33, p < .01$. The independent samples T-test for 'attention dimension' showed a significant difference for the high involvement group ($M= 4.78, SD= 1.35$) and the low involvement group ($M= 3.44, SD= 1.45$), $t(147) = 5.89, p < .01$.

In order to further look at the mean values and standard deviations for 'processing strategy' across all four experimental conditions, one way-ANOVA test was conducted. One way-ANOVA showed a significant effect difference between the experimental groups, $F(3, 145) = 6.54, p < .001$. For attention dimension, similar one way-ANOVA was carried out, also showing significant mean difference between respective groups $F(3, 145) = 11.45, p < .01$. Mean differences and standard deviations are tabularized in the table 4.2.1.

Table 4.2.1. Mean differences and standard deviations ‘processing strategy’ and ‘attention dimension’

		N	Mean	Std. Deviation
Attention Dimension Score	High involvement + Corresponding sponsored	34	(4.79)	1.32
	Low involvement + Corresponding sponsored	36	(3.51)	1.47
	High involvement + Non-corresponding sponsored	34	(4.81)	1.41
	Low involvement + Non-corresponding sponsored	45	(3.38)	1.43
Processing Strategy Score	High involvement + Corresponding sponsored	34	(4.51)	1.71
	Low involvement + Corresponding sponsored	36	(3.38)	1.60
	High involvement + Non-corresponding sponsored	34	(4.44)	1.74
	Low involvement + Non-corresponding sponsored	45	(3.21)	1.56

Having established that both ‘processing strategy’ and ‘attention dimension’ have a significant difference in mean scores between the two experimental conditions, it can be concluded that – along with the satisfactory reliability scores of the respective items – the experimental manipulation of the respective high- and low involvement conditions was successfully conducted.

4.1 Conversion Manipulation Check

In order to ensure that purchase intention was a result of the experimental manipulation, a final manipulation check for purchase intent was done using three questions, one of which revolved around respondents’ regular online purchase behavior, one was about

whether or not respondents' had bought a backpack lately, another asked the respondents whether or not they were planning to buy a backpack sometime in the near future. For this last question respondents had the possibility to answer 'don't know'.

An independent samples T-test comparing conversion means between respondents who answered 'yes' and respondents who answered 'no' was conducted. Of the respondents, 9.4% answered to have recently bought a backpack. The independent samples T-test for 'Have you recently bought a backpack?' showed a significant difference in conversion rates between the 'yes' group ($M= 5.30, SD= .56$), and the 'no' group ($M= 4.68, SD= 1.28$), $t(29.52)= 3.45, p= .002$. Even though there was a significant effect of this measure on overall purchase intent, the amount of respondents who answered yes (14) is quite small and, moreover, quite fairly distributed across all four experimental conditions (respectively 4, 2, 3 and 5).

For the question 'Are you planning to buy a backpack sometime in the near future?' 20 respondents (13.3%) responded 'yes', 102 (68%) responded 'no', and 28 (16.8%) responded 'Don't know'. One-way ANOVA showed a difference in mean values between respondents having answered 'yes' ($M= 4.69, SD= 0.93$), 'no' ($M= 4.76, SD= 1.27$), and 'don't know' ($M= 4.65, SD= 1.36$). This difference in mean values was found non-significant $F(2, 147)= .11, p= .91$.

To check the correlation between scores on 'How often do you make online purchases?' and conversion rates, Pearson's r was calculated by means of a bivariate correlation analysis. The two variables were found to be weakly positively and, moreover, insignificantly correlated, $r(148)= .11, p= .23$. From this can be derived that there is no significant relationship between how often respondents reported to make online purchases and the conversion rates they returned in the experiment.

To check the correlation between scores on 'How comfortable are you making online purchases?' and conversion rates, Pearson's r was calculated by means of a bivariate correlation analysis. The two variables were found to be very weakly positively and significantly correlated, $r(148)= .19, p= .02$. (Appendix X6). From this can be derived that there is a significant, albeit negligible, positive correlation between how comfortable respondents reported to be in making online purchases and the conversion rates they returned in the experiment.

4.2 Hypotheses Testing

In this section the data analysis and results are put forward. Following from these results, the three hypotheses are tested. Throughout this section, references are made to tables and graphs generated by SPSS. When appropriate, this output is included in this chapter, otherwise it is added in the appendix.

Hypothesis 1 posed that ‘Situations of high consumer involvement are less likely to lead to high-ranked (peripheral) clicks than situations of low consumer involvement’. The Chi-Square test compared the frequencies that were observed in the respective conditions to the frequencies one might expect to get by chance, and shows that there is a significant difference between clicks in the respective high- and low involvement conditions $\chi^2(2, N= 151)= 34.43$, $p= .001$.

The cross-tabulation of involvement and clicks is shown in table 4.1 below. From this table can be derived that participant involvement affects click behavior. Whereas for the High Involvement condition, participants proved to be more inclined to click on the bottom organic listings on the SERP, the low involvement participants showed a tendency to click on the top organic listings. Furthermore, the high involvement participants were least likely to click on sponsored search results. The low involvement participants, on the other hand, were least likely to click on one of the bottom organic search results. The bar chart in figure 4.2 puts this data in to a visually comprehensible perspective.

Table 4.1: Involvement * Click Section Crosstabulation

		% within Involvement		
		High involvement	Low involvement	Total
Click Section	Sponsored (1,2,3)	10,1%	29,3%	20,5%
	Top Organic (4,5,6)	33,3%	58,5%	47,0%
	Bottom Organic (7,8,9,10)	56,5%	12,2%	32,5%
Total		100,0%	100,0%	100,0%

From this table can be derived that participant involvement affects click behavior. Overall, top organic listings received most clicks (47%), followed by the bottom organic search results (32.5%) and sponsored search results (20.5%). Whereas for the high involvement condition,

participants proved to be more inclined to click on the bottom organic listings on the SERP, the low involvement participants showed a tendency to click on the top organic listings. Furthermore, the high involvement participants were least likely to click on sponsored search results. The low involvement participants, on the other hand, were least likely to click on one of the bottom organic search results. The bar chart in figure 4.2.1 puts this data in to a comprehensible perspective.

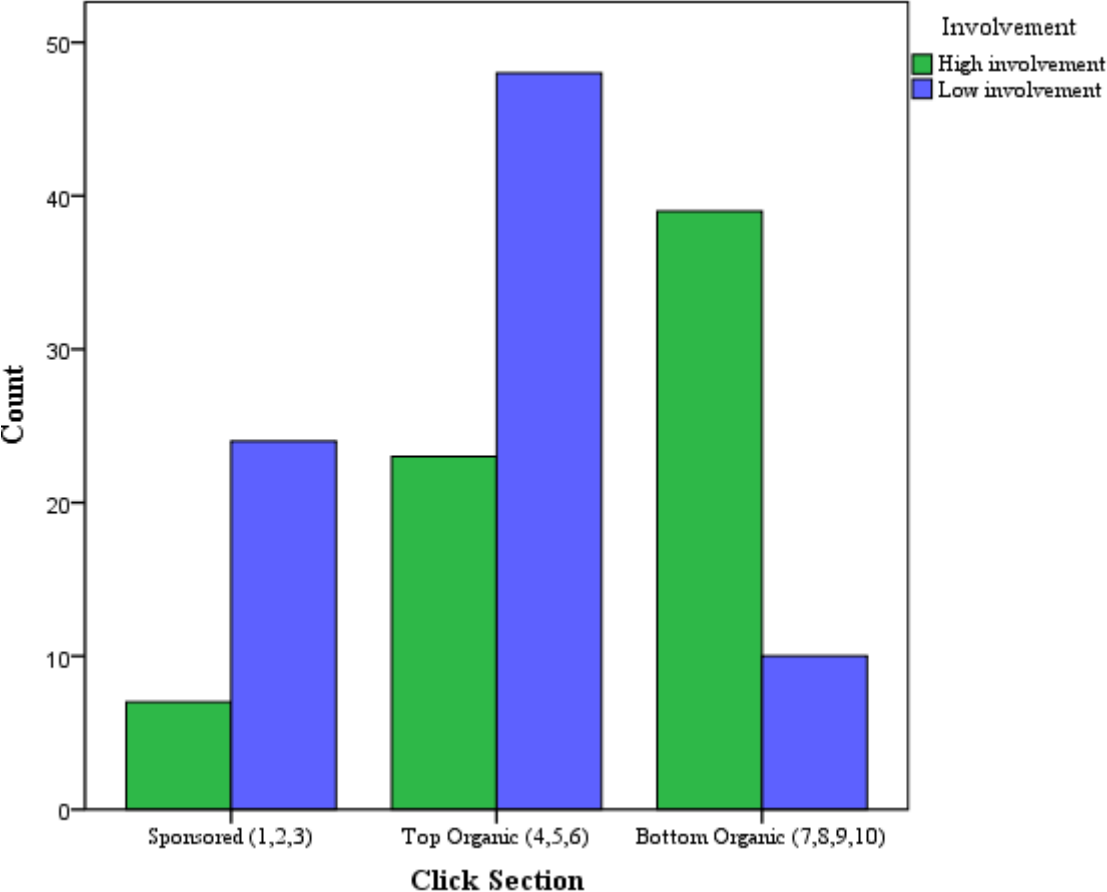


Figure 4.2.1 Bar Chart: Involvement * Click Section

The results show that low-involved participants are indeed more likely to click on higher-ranked search results than high-involved participants, whom proved far more likely to pick one of the bottom organic search results. This means that H1 is supported.

Hypothesis 2 posed that corresponding sponsored search results are more likely to receive clicks than non-corresponding sponsored search results. In other words, SERPs in which the top organic search results (4, 5, and 6) were corresponding with the sponsored search results (1, 2, and 3), would receive more clicks in the sponsored and top organic section compared to SERPs in which the top organic listings were not corresponding with the

sponsored listings. A Chi-Square test was conducted to compare the frequencies that were observed in the respective listings to the frequencies one might expect to get by chance, this showed that there was no significant difference in the distribution of clicks between the respective corresponding sponsored and non-corresponding sponsored listings, $\chi^2(2, N= 151)= 2.23, p= .328$ (Appendix X8). These findings counter the hypothesis that participants would be more likely to click on a search result that appears both in organic and sponsored listings, and therefore it is rejected.

Hypothesis 3 posed that high-ranked (peripheral) clicks are less likely to result in conversion than low-ranked (central) clicks. In order to test this hypothesis, one way-ANOVA was carried out between Click Section and Conversion variables. The conversion variable was computed in SPSS and consists of all the purchase intent measures included in appendix A. One way-ANOVA showed a significant effect of clicks on conversion rates, $F(2, 146)= 11.29, p< .001$. The respective mean conversion rates are and standard deviations are tabularized in table 4.2.2 and plotted in figure 4.2.3.

Table 4.2.2 Conversion Means and Standard Deviations

	N	Mean	Std. Deviation
Sponsored (1,2,3)	30	4.11	1.47
Top Organic (4,5,6)	71	4.58	1.14
Bottom Organic (7,8,9,10)	48	5.33	.96

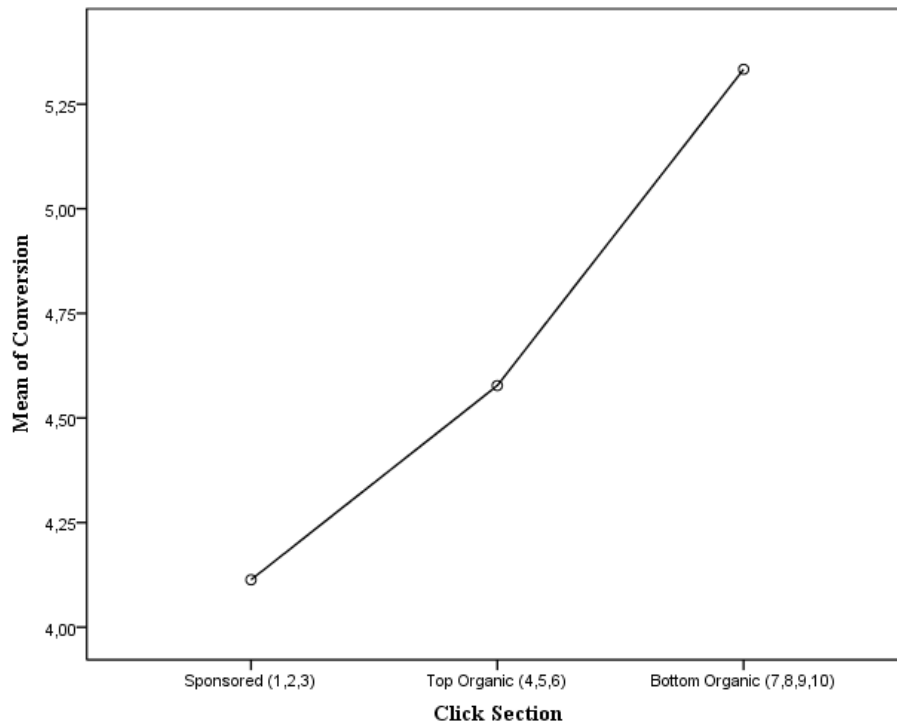


Figure 4.2.3 Means Plot Click Section * Conversion

5. Discussion

The goal of this research was to unravel the heuristic and systematic tendencies that are at play in product search queries. Involvement and sponsored search results were manipulated within the context of a fictional product search query. In the results section the hypotheses that were posed in the theoretical framework were tested through inferences from the collected data. The first hypothesis, which posed that Situations of high consumer involvement are less likely to lead to high ranked clicks than situations of low consumer involvement, was supported by findings from the data. This hypothesis formed the cornerstone of this research, and showed that high- and low elaboration have a profound effect on consumer click-behavior. In high involvement situations, consumers seem more likely to scrutinize the search results list and not to blindly follow a peripheral cue such as search ranking, which results in them more often picking a search result that is located at the bottom of the page. Note that the bottom search results are not immediately visible to the user (both in this experiment as well as in real life), because they are below the page ‘fold’, meaning that users have to scroll down before these search results become visible to them. In both cases consumers are least likely to click on the sponsored listings, this occurrence is –

in accordance with the hypothesis – more prevalent in situations of high involvement, and in accordance with the general non-commercial bias that was established in preceding research.

The second hypothesis posed that ‘Corresponding search results are more likely to receive (peripheral) clicks than non-corresponding search results’. In this case the hypothesis was not supported by findings from the data. Not only was there no significant relation to be found between the presence of corresponding sponsored search results and clicks, the data even seemed to point to the contrary, showing that cumulative clicks in respectively the sponsored section and the top organic section seemed to be more likely on the search results pages where the sponsored search results were non-corresponding. Regardless, the ‘second opinion effect’ as it was proposed did not manifest itself within the scope of this experiment. At least, it does not seem to act as an aphrodisiac for clicks overall, nor does it seem to act as a peripheral cue in low involvement situations. A possible explanation for this might be that the respondents of this research constituted a specifically technologically literate cohort of the general population, resulting in them being less susceptible to such a peripheral cue. It might be that an overall ‘older’ sample would have led to different results pertaining to the second hypothesis. All in all, the proposition of more people opting for a search result because it is visible in both organic and sponsored search results simultaneously, does not hold up in this research.

The third and final hypothesis posed that *centrally processed clicks are more likely to result in conversion than peripherally processed clicks*. It was already established that the relationship between involvement and click behavior constituted a negative one. So the higher the involvement, the less likely it was that clicks would be selected based on rank. This final hypothesis focused on the conversion rates that can be expected as a result of those clicks. Results showed that conversion rates differed significantly per click section, in which the bottom organic search results were most likely to lead to conversion and the sponsored search results were least likely to lead to conversion.

That being said, it can be concluded that the top organic search results are more likely to be a result of peripheral processing, whereas the bottom organic search results are more likely to be a result of peripheral processing. This contrasts with the notion that users dedicate less cognitive effort on SERPs that follow the first SERP, because they are deemed less promising with regard to the search query at hand (Böcking et al., 2007). This suggests that there is a different tendency at play at the single-page level -in which more cognitive effort is

given for the bottom search results- as opposed to the multiple page level, in which cognitive effort decreases as users go to the next page. Moreover, in case of the bottom search results it becomes more likely that the user will make a purchase in comparison with the top organic search results. In any case, there was a strong bias against sponsored search results, which was reflected in click rates as well as conversion rates. So with regard to the central question posed at the beginning of this dissertation: *To what extent do corresponding sponsored- and organic search results reinforce one another and what listings are more likely to lead to conversion?* There was no heuristic reinforcement detected within the scope of this research. Even though Yang and Ghose (2010) detected positive reinforcement on an aggregate scale, no 'second opinion effect' was detected in this research. In terms of conversion rates, the lower ranked search results proved to be more successful on average in this research.

5.1 Theoretical Implications

This research provided new theoretical insights in to the search engine dynamics, connecting heuristic and systematic processing to SERP interaction. It remains relevant to evaluate search results even before the landing page is visited, for this is an important preliminary phase in the entire product search process. The place where we find ourselves on the elaboration continuum in the sequence preceding a click, determines the way in which we interact with a search engine, and influences our click behavior. Eventually, this also proved to be determinant for conversion rates. This is a key process that is neglected in aggregate click analysis, in which the 'nature' of these clicks is systematically neglected, and thus the distinction between high- and low involved consumers denied. Distinguishing between high- and low involvement situations lays bare the vast differences in the way that consumers interact with SERPs, rather than piling them and making inferences from large-scale panel data.

5.2 Managerial Implications

For managers, this research provides valuable insights into marketing variables pertaining to search engine marketing and search engine optimization. This is especially relevant given the increased spend in search-engine based advertising in recent years. In marketing, involvement is a most relevant construct, this is no less true for search engine marketing and optimization. Retailers monitor their performance on SERPs by looking at click through rates and conversion

rates. However pragmatic for marketing allocation purposes, these figures merely show how sponsored and non-sponsored web links perform. When looking at industry specific levels, such as fast moving consumer goods for example, the relevance of the involvement construct becomes evident. Fast moving consumer goods are typically low priced products which evoke little elaboration with the consumer. The light that this research sheds on this matter, is that high ranked search results are more likely to be selected in a process of low elaboration. This means that acquiring a place among the top search results on a SERP is particularly relevant for search engine marketers and –optimizers in the FMCG sector.

Of course, stressing the importance of being among the top search rankings does not really bring anything new to the table whatsoever, but stressing that there are different tendencies of approaching information in different sections of a SERP does. When low elaboration is more prevalent in high-ranked and sponsored search listings, it is partly up to search engines and partly up to search engine marketers and optimizers to leverage on this information. As has been explained earlier, organic listings are automatically generated by the search algorithm, as are the abstracts that come along with them. For search engines this might mean that they want to display the information for high-ranked organic search results differently as opposed to lower-ranked organic search results. For search engine marketers, this information might lead them to reconsider the advertising ‘creative’, which is the short descriptive texts that they put in to the sponsored search results. This text should be short(er) and more appealing in a heuristic sense, in order to adhere to the low elaboration tendency that users have when navigating through sponsored search listings.

For marketers of retail or other goods that generally involve a more involved process of elaboration, the importance of being among the top (or sponsored) search results was somewhat trivialized by the findings in this research, at least in terms of conversion rates. However being among the top ranked search results is still evidently important with regard to exposure of brand and product.

5.3 Limitations and Future Research

Although a laboratory experiment has profound advantages such as manipulation of selected variables and uniformity of procedures, it also has its limitations. Although a scenario describing a product search situation was provided in order to increase the sense of reality in this experiment, it remains quite certain that all participants were aware of its

artificial nature. Main strength of this research was its attempt to go beyond clicks, instead of measuring clicks at an aggregate scale. This strength however, lays bare its main weakness at the same time. Whereas aggregate data enable search engine researchers to evaluate millions of clicks, this experimental research was limited to a much smaller number. This had the consequence that a pragmatic choice had to be made about the particular search query situation, which puts the participant in a particular situation in which a particular product is being searched. Apart from that, for most consumers the process of looking up products involves several stages of information seeking. This is often a trial-and error sequence of SERP navigation, in which multiple search queries are issued, multiple search results selected and multiple landing pages evaluated. Furthermore, this research asked the participants to evaluate their preferred search result on 'face value', whereas the landing page that the search result leads to would be very likely taken into account before any real evaluation by the user would take place.

For search engine researchers the involvement construct tied to conversion rates and click behavior opens up new doors for academic inquiry. This study probes for a more thorough understanding of the involvement construct and its relation to consumer interaction with search engines. Departing from the elaboration likelihood perspective, more research should be conducted in order to further crystalize the manner in which respectively high- and low involvement situations spark different interactions with SERPs.

Furthermore, the second opinions effect might not have been found in this experimental study, but more research needs to be done to ascertain its (non-) existence. As explained earlier, the sample of this study consists of a specifically savvy cohort when it comes to interacting with search engines, while a different – 'older' – population might prove to return different results.

In terms of conversion rates and click behavior, this research probes for more academic inquiry in the heuristic and systematic motivations for clicking search results. This research focused on the click behavior and conversion as a result of either high- or low involvement, but it would be most interesting to further dive into the specific points of information that search engines present, and find out what information is successfully conveyed in which types of involvement.

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Appendix A: Survey Items

Manipulation Check for Involvement

To assess the attention dimension of involvement, a five-item index is constructed, in which each item is measured on a seven-point scale with endpoints “None” (1) and “Very Much (7)”. The sum of the scores on the five items constitute an index of message attention.

Att1. How much attention did you pay to the texts (abstracts) that accompanied the respective search results?

Att2. How much attention did you pay to the search results listed at the bottom?

Att3. How much did you concentrate on the advertisements that were listed?

Att4. How involved were you in picking out the most appropriate search result?

Att5. How much thought did you put into evaluating all the search results?

In order to test processing strategy, a six-item index with endpoints “Not at all” (1) and “Very Much” (7) was constructed by summing responses for these six items.

Proc1. I thoroughly analyzed all the search results that were listed to make an educated decision.

Proc2. I carefully scrutinized the entire list of search results to find out which listing would provide me with the most useful web link.

Proc3. I carefully considered all the attributes that the available search results have.

Proc4. I closely pinpointed and weighed the benefits of the respective search results.

Proc5. I thoroughly read through each and every search result to find the most suitable one.

Proc6. I carefully looked at each and every one of the search results so that I could determine what the respective links had to offer.

Attitude towards Purchase Intent (Conversion)

A five-item, seven-point semantic differential scale is used to measure the likelihood that participants would purchase a backpack on the web page of their preferred search result.

Conv1. Following from your preferred search result, how likely are you to purchase a backpack on that web page?

Conv2. How do you perceive the probability that this web link would provide you with a suitable store for purchasing a backpack?

Conv3. How certain are you at this point that the website of the preferred search result is trustworthy?

Conv4. Are you confident that your preferred search result will lead you towards a most suitable choice for a backpack?

Conv5. How positive or negative is your judgment towards the search result as your preferred backpack store?

Conversion Manipulation Check

In order to ensure that conversion was a result of the experimental manipulation, a final manipulation check for purchase intent and regular purchasing behavior was conducted.

ConvMan1. Have you recently bought a backpack?

ConvMan2. Are you planning to buy a backpack in the near future?

ConvMan3. How often do you make online purchases? (1(Never) -5 (Every week))

ConvMan4. How comfortable are you purchasing products online? (1(Very uncomfortable) -5 (Very comfortable))

Demographics

Dem1. What is your age?

Dem2. What is the highest degree or level of school you have completed?

- a. Highschool
- b. Intermediate Vocational Education (MBO)
- c. Applied Sciences (HBO)
- d. Bachelor degree
- e. Master degree
- f. PhD

Dem3. What is your current employment status?

- a. Student
- b. Employed
- c. Unemployed
- d. Entrepreneur
- e. Retired

Appendix B: Survey Textual Information

General Introduction

Welcome and thank you for taking the time to participate in this survey. It will only take up a few minutes of your time! If you are interested in the proceedings of this research and would like to receive the results once it is completed, don't hesitate to contact me! t.v.niele@gmail.com

Introduction High Involvement

Please carefully read the following introductory text. Thanks! You will be able to click 'continue to survey' in 20 seconds.

It's been quite the stressful year and you've decided to take some time off to go abroad. You are planning to embark on an epic backpacking trip which will take you through Colombia, Peru, Brazil, Argentina and Chili. Everything's set, but now you only need a proper backpack to carry your belongings across South America. There are no backpacking stores in the vicinity of your residence, which is why you've decided to purchase a backpack online. Since you will be going on quite a long trip involving long walks, you are looking for a backpack of 60 liters or larger.

>Click 'Continue' to start with the survey<

In order to find a store which provides backpacks suitable to your needs, you Googled the search term 'purchase backpack online', and Google provided you with the search results (see link below). Please carefully consider all the search results that are listed and select the result that seems most suited to your needs. [LINK to webpage].

Choose your preferred search result.

Continue with survey

Introduction Low Involvement

You are looking to buy a backpack online and you've decided to enter the search query 'purchase backpack'. The results are provided in the web link below. Please pick the one that seems most suited to your needs if you where to buy a backpack online.

Outro

Thank you for taking the time to fill out my survey! If you have any suggestions or experienced any problems along the way, I would very much welcome your suggestions in the box below.

Appendix C: Search Engine Results Pages

The image shows a browser window with the address bar containing 'search.datafixatie.nl/ex-i/'. Below the address bar is the Google search interface. The search bar contains the word 'backpack'. Below the search bar are navigation tabs for 'Web', 'Images', 'Shopping', 'Maps', 'Videos', 'More', and 'Search tools'. The 'Web' tab is selected. Below the tabs, it says 'About 39,000,000 results (0.37 seconds)'. There are ten search results listed, each with a title, a URL, and a short description. The results are for various backpack retailers and websites. At the bottom of the page, there is a section for 'Searches Related to backpack' with a list of related terms. Below that is the Google logo with a search button and a page number '1' selected. At the very bottom, there is a footer with links for 'Help', 'Send feedback', and 'Privacy & Terms'.

← → ↻ 🏠 search.datafixatie.nl/ex-i/

Google backpack 🔍

Web Images Shopping Maps Videos More Search tools

About 39,000,000 results (0.37 seconds)

Buy Backpacks and Bookbags at Deep South
Ad www.deepsouth.com/filter-category-backpack
Shop premium **backpacks** and book bags at our online store!
Deep South has 1862 followers on Google+

Cross Country Sports | Backpacks
Ad www.crosscountrysports.com/backpacks
We have a fantastic range of **backpacks** and rucksacks available for you!
Cross Country Sports has 1591 followers on Google+

Blue Lagoon Backpacks
Ad www.bluelagoon.com/store/backpacks
A large variety of **backpacks** for men and women on stock!
Blue Lagoon has 1589 followers on Google+

Blue Lagoon Backpacks
www.bluelagoon.com/store/backpacks
Shop mens and womens **backpacks** for sports and leisure. Innovative technology. Online shopping for Sports & Outdoors from a great selection of Hiking Daypacks, Internal...

Cross Country Sports | Backpacks
www.crosscountrysports.com/backpacks
Inspired by classic mountaineering style, our **backpacks** have a larger volume paired with modern function. Shop for different sizes, both mens and womens...

Deep South Backpacks
www.deepsouth.com/filter-category-backpack
Spring Showers \$5 Flat Rate Shipping. Any Order. No Minimum* Details. Image for Deep South **backpacks**...

Mountain Wear | Backpacking Packs, Rolling Duffel Bags
www.mountainwear.com/outdoor-camping-equipment-backpacks
Mountain wear backpacking packs, rolling duffel bags and backpacks are comfortable, versatile, lightweight and highly functional packs...

SportsNow.com | Accessories | Backpacks
www.sportsnow.com/accessories/backpacks/buy
We have a fantastic range of **backpacks**, rucksacks, day sacks and much more at amazingly low prices! Suitable for a huge array of activities, we have all you...

Backpacks at Hikers International
www.hikersinternational.com/store/hiking/backpacks
Shop for Backpacks at Hikers International - FREE SHIPPING With \$50 minimum purchase. Top quality, great selection and expert advice you can trust. 100% Satisfaction ...

Outdoor Adventures | Backpacks
www.outdooradventures.com/cross-country/backpacks
Buy Rucksacks, daypacks, **backpacks** and travel packs online and in store from Outdoor Adventures. Buying the right pack is important, you have a wide...

Searches Related to backpack

travels backpack kermit backpack
mens backpack herschel backpack
backpack ebay backpack stroller
backpack amazon lowepro backpack

Gooooooooooogle >
1 2 3 4 5 6 7 8 9 10 Next

Help Send feedback Privacy & Terms

Appendix D: Factor Loadings

Table X Factor Loadings

Items	Processing Strategy	Attention Dimension	Conversion
Proc4	.909		
Proc6	.909		
Proc3	.894		
Proc2	.890		
Proc5	.887		
Proc1	.882		
Att1		.917	
Att2		.869	
Att4		.840	
Att5		.799	
Conv4			.887
Conv5			.876
Conv1			.871
Conv2			.871
Conv3			.842
<i>Cronbach's Alpha</i>	.95	.87	.92
<i>r(p < .05)</i>			
<i>Eigenvalue</i>	4.81	2.94	3.78