Product Information Search Online

Three Case Studies Investigating Online Consumer Behavior

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Abstract

An important aspect of consumer behavior in electronic environments is the search habits consumers adopt when gathering information before making a purchase decision. Very little research has been conducted within this area and therefore, the aim of this study was to gain a better understanding of how consumers search for product information online. More specifically, this study further explores the factors that influence consumers in their product search activity online, as well as the preferred search tools and search habits utilized. In addition, the problems associated with product information search online, and the potential shortcuts employed, were points of focus. The empirical data was gathered through three focus group interviews with students from three different areas of the world, namely, Asia, Europe, and North America. The findings and conclusions of this study indicated that there are several factors that influence consumer search activity online. In addition, a few different preferred search tools used for product information search online were detected, as well as, a few different problems associated with searching on the Internet. Finally, it was found that information seekers utilize mental shortcuts in order to reduce the amount of information searched online.
Sammanfattning

Preface
The work presented in this thesis was carried out during the fall of 2002 and spring of 2003 at Luleå University of Technology (LTU). During this time we had help from several different people that we would like to thank.

First, we would like to thank our supervisor, Tim Foster at the Division of Industrial Marketing at LTU, for his never-ending support and helpful advice during this process. We could not have done it without you. Secondly, we would like to thank all the participants in our focus groups for taking the time to participate in this study. Finally, we would like to thank the people who have read and otherwise helped us improve this thesis by providing us with great feedback.

Throughout the work with this thesis, we have gained a lot of knowledge, experience, and insight to the area of online consumer behavior, but it has also helped us contribute to the future research within this area.

Luleå, March 2003

Johanna Phillips Huuva         Katrin Sannerborg
4.3 Case Three: An Asian Perspective ............................................................... 53
  4.3.1 Factors Influencing Product Search Activity Online ................................. 54
  4.3.2 The Preferred Search Tools for Retrieving Product Information Online .... 56
  4.3.3 Problems Associated with Product Information Search Online ............... 57
  4.3.4 Shortcuts Utilized when Searching for Product Information Online .......... 58

5. Analysis ........................................................................................................... 60
  5.1 Factors Influencing Product Search Activity Online .................................. 60
     5.1.1 Within-Case Analysis ........................................................................... 60
     5.1.2 Cross-Case Analysis ........................................................................... 65
  5.2 Preferred Search Tools for Retrieving Product Information Online .......... 68
     5.2.1 Within-Case Analysis ........................................................................... 68
     5.2.2 Cross-Case Analysis ........................................................................... 73
  5.3 Problems Associated with Product Information Search Online ............... 76
     5.3.1 Within-Case Analysis ........................................................................... 76
     5.3.2 Cross-Case Analysis ........................................................................... 79
  5.4 Shortcuts Utilized when Searching for Product Information Online .......... 81
     5.4.1 Within-Case Analysis ........................................................................... 81
     5.4.2 Cross-Case Analysis ........................................................................... 83

6. Findings and Conclusions ............................................................................. 84
  6.1 How Can the Factors Influencing Product Search Activity Online Be Described? 84
  6.2 How Can the Preferred Search Tools for Product Information Search Online Be Described? ................................................................. 86
  6.3 How Can the Problems Associated with Product Information Search Be Described? ........................................................................... 87
  6.4 How Can the Shortcuts Utilized for Product Information Search Online Be Described? ........................................................................... 88
  6.5 Implications for Practitioners .................................................................. 89
  6.6 Implications for Theory .......................................................................... 89
  6.7 Implications for Further Research ........................................................... 90

List of References

Appendix 1: Interview Guide
Appendix 2: Questionnaire
List of Tables and Figures

List of Tables

Table 1.1 Disposition of the Thesis ................................................................. 8
Table 2.1 How Consumers Search For Product Information Online .............. 20
Table 3.1 Relevant Situations for Different Research Strategies ..................... 32
Table 3.2 Six Sources of Evidence: Strengths and Weaknesses ..................... 33
Table 3.3 Case Study Tactics for Four Design Tests ...................................... 38
Table 5.1 Factors Influencing Product Information Search Online ................ 65
Table 5.2 Experienced Relationship Between Information Search and Internet Experience ................................................................. 67
Table 5.3 The Search Tool Ranking ................................................................. 74
Table 5.4 Preferred Search Tools for Retrieving Product Information Online .... 75
Table 5.5 Problems Associated with Product Information Search Online ........ 80
Table 5.6 Shortcuts Utilized when Searching Online ...................................... 83

List of Figures

Figure 1.1 The Consumer Decision-Making Process ...................................... 3
Figure 2.1 The Positive Relationship Between Information Search and Amount of Knowledge ................................................................. 13
Figure 2.2 The Negative Relationship Between Information Search and Amount of Knowledge ................................................................. 14
Figure 2.3 The Relationship Between Amount of Prior Knowledge and Information Search ................................................................. 15
Figure 2.4 The Modified Positive Relationship Between Information Search and Internet Experience ................................................................. 27
Figure 2.5 The Modified Negative Relationship Between Information Search and Internet Experience ................................................................. 27
Figure 2.6 The Modified Inverted-U Relationship Between Information Search and Internet Experience ................................................................. 27
1. Introduction

This chapter discusses the background to the problem area. It is followed by a problem discussion and an overall purpose. From the purpose specific research questions are posed for this thesis. Finally, the demarcations and the disposition of the thesis are presented.

1.1 Background

With increased globalization of the world economies, for most commercial enterprises, market opportunities seem to be endless these days (Paul 1996). Much of this is due to the development of the communication technology called the Internet. With 50 million people connected in only five years, the Internet has become the fastest accepted communications medium ever (Kalakota & Robinson, 1999). This rapid evolution has a lot to do with the development of graphical interfaces on the Internet, allowing even those who are technologically unsavvy to utilize the Internet. Part of this development has included the advent of the World Wide Web, which provides a virtual connection among independent computers located around the world. (Breitenbach & Van Doren, 1998)

The Web represents an extremely efficient medium for accessing, organizing, and communicating information. As such, the Internet subsumes communication technologies ranging from the written and spoken word to visual images. (Yelkur & Manuela, 2001) More and more businesses today are discovering the Internet as a fundamental communication tool used to conduct daily business. Large and small companies are embracing the Web in order to communicate with current and potential customers abroad with the same cost and ease as in their home countries. The fact is that the Internet has made it so that every business today competes in two worlds: a physical world of resources that managers can see and touch and a virtual world made of information. (Kiani, 1998)

This new “fifth medium”¹ provides affordable, accessible technology that brings together buyers and sellers, large and small, on a global scale (Kiani, 1998). The Web is no longer just a data network, but a sales and distribution channel. The buying and selling over this digital media is called electronic commerce, or e-commerce. (Kalakota & Robinson, 1999) E-commerce is not just a single technology but also a combination of technologies, applications, processes, business strategies, and practices, necessary to do business electronically (McIvor, Humphreys & Huang, 2000). E-commerce has experienced rapid growth during its infant years and the pace is not expected to slacken. (Ward and Lee, 2000) In 1999, e-commerce transactions accounted for over $150 billion in sales and it is predicted that this amount will increase to $3 trillion by the year 2003 (Yelkur & Manuela, 2001).

The Web has some unique and powerful characteristics that make it central to a paradigm shift in marketing. The shift from “one-way” to “two-way” information flows between producers and consumers, from the conventional “one-to-many” communication model to the “many-to-many” model and the shift to the “fifth phase” of marketing evaluation, characterized by differentiated products in decentralized markets. (Hoffman & Novak, 1996) In this new environment marketers are able to consider consumers individually, customize their services and products, and establish dialogues with consumers rather than talk at them. This comparing the Web with traditional marketing communication channels, the Web is faster, less expensive, highly immediate communication, around the clock, and global. (Kiani, 1998)

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¹ Newspapers, magazines, radio, and television are the other four (Kiani, 1998).
Because the Web presents a significantly different environment for marketing activities, traditional media and conventional marketing activities are being transformed, as they are often difficult to implement in their present form. (Hoffman & Novak, 1996) According to Hoffman and Novak (1996) virtually every aspect of Web-based marketing strategy differs from the manner in which firms are used to doing business. This is supported by Yelkur and Manuela (2001) and Belch & Belch (2001) who state that the Web has changed the marketing process and therefore, in order to effectively market on the Web, companies need to evaluate the basic components of the marketing mix: product, price, place and promotion.

Besides changing the components of the traditional marketing mix, some of the most intriguing effects of the Internet will come in how the trade-off between components of the marketing mix operate. Traditionally the amount of products a retailer could carry in one place was more than the amount of information they could present about the product in their promotions. The Internet has eliminated that tradeoff and today, Internet retailers can offer many more products than the largest bricks and mortar retailers and provide detailed product information at the same time. Warehousing and distribution are no longer part of navigation and selection. Therefore, manufacturers are no longer limited in the size of their market and the amount of information they can present to consumers through promotions. (Allen & Fjermestad, 2001)

Promotion is one of the key 4Ps in the marketing mix and as such has a key role to play in marketing success (Rowley, 2001). The role of promotion is to coordinate all seller-initiated efforts to set up channels of information and persuasion to sell goods and services or promote an idea (Belch & Belch, 2001). In addition, promotion encompasses all the various activities an organization undertakes to communicate its products’ merits and persuade target customers to buy from them (Allen & Fjermestad, 2001).

A challenge faced by all marketers is how to influence the purchase behavior of consumers in favor of the product or service they offer. While their ultimate goal is to influence consumers’ purchase behavior, most marketers understand that the actual purchase is only part of an overall process. Therefore, in order to develop lasting promotion strategies companies need to have an understanding of how consumers behave. (Belch & Belch, 2001) This is supported by Arens (1996) who says that an understanding of consumer behavior helps advertisers bring products into the collective consciousness of prospective customers.

Consumer behavior is important from a number of different points of view. From the perspective of marketing and especially promotion, the study of consumer behavior is important in helping to forecast and understand consumer demand for products as well as brand preferences. Consumers also need to gain insight into their own behavior if they are to spend their income optimally. From the perspective of science, the study of consumer behavior is a rich domain in which to test economic, cognitive, economic–psychological and social–psychological theories (Antonides & Van Raaij, 1998). In addition, an understanding of consumer behavior on the Internet is increasingly important because the amount of previous studies are limited, due to the fact that e-shopping is only just beginning to penetrate mass markets (Rowley, 2000a).

Unfortunately, there is no single theory of consumer behavior that can explain why consumers behave as they do. Instead, there are numerous theories, models, and concepts making up the field. One of the theories that are important to understand is that of the consumer decision-making process. (Peter & Donnelly, 2000) In this process a consumer decides to make a
purchase and then goes through a series of steps in order to make it. These steps can be described as a series of actions and are presented in Figure 1.1. below. (France, Yen, Wang & Chang, 2002)

![Figure 1.1. The Consumer Decision-Making Process](image)

Source: Adapted from Solomon et al. (1999) p.208

The first step of the decision-making process, problem recognition, occurs whenever the consumer sees a significant difference between his or her current state and some desired or ideal state. Once a problem has been recognized, consumers need sufficient information to resolve it. Information search is then the process in which the consumer surveys his or her environment for appropriate data to make a reasonable decision. Much of the effort that goes into a purchase decision occurs at the next stage, evaluation of alternatives, where a choice must be made from the available alternatives. Once the relevant options from a category have been collected and evaluated, a choice must be made among them. The decision rules at this stage, product choice, can range from very simple and quick strategies to complicated processes requiring a lot of attention and awareness processing. Finally, the outcomes deal with influences in the actual purchase situation, as well as the person’s satisfaction with the decision. (Solomon, Bamossy, & Askegaard, 1999)

### 1.2 Problem Discussion

An important aspect of consumer behavior on the Internet will be the search habits that consumers adopt in gathering information to inform their buying decisions (Rowley, 2000a). This is the second stage of the decision-making process, consumer information search behavior, which has emerged as an important field of study. This is not surprising given that information search is an integral aspect of consumer decision-making. Hence, understanding information search is crucial for designing effective marketing communication campaigns because it represents the first stage at which marketing can provide information, and therefore influence consumers’ decisions (McColl-Kennedy & Fetter Jr., 2001). In other words, this is the stage where promotional messages should reach the intended consumer (Rowley, 2001). Sometimes consumers will actively seek out information with the idea of using it to make a decision (directed or purposeful searching). On other occasions users browse through information sources gathering information that they may use immediately or later. (Rowley, 2000a)
Information sources can roughly be broken down into two kinds: internal and external. As a result of prior experience and simply living in a consumer culture, consumers often have some degree of knowledge about many products already in memory. When confronted with a purchase decision, consumers may engage in internal search by scanning their own memory banks to assemble information about different product alternatives. Usually, though, even the most market-aware consumer needs to supplement this knowledge with external search, where information is obtained from advertisements, friends, or just plain people watching. (Solomon et al., 1999) Ultimately, consumers are likely to gather information from a variety of different information sources in the process of making consumer decisions. The information available over the Web is only one of those sources, and cannot be viewed in isolation. (Rowley, 2000a)

Often, the first place that consumers look to solve a problem is internally. Consumers may derive solutions from their own experience. The available option and habits are most easily retrieved from memory. However, internal search processes are often not optimal, since some options may be forgotten. Experienced consumers may solve many problems using internal search, while consumers with little experience, or experienced consumers in new or changed situations, may use external search. (Antonides & Van Raaij, 1998) The knowledge of how consumers acquire and use information from external sources is important to marketers in formulating communication strategies (Belch & Belch, 2001).

Although consumer information search has received considerable attention, both conceptual and empirical, in the marketing literature, most of the research has focused on information search in the real world and not online. However, the few studies that have been done within the area have a belief that the Internet has changed the way consumers search for information. (Rowley, 2000a, Spink, Bateman & Jansen, 1999, and France et al. 2002) This is supported by Ford, Miller and Moss (2002) who states that searching for information on the Web is in many important respects very different from information search in more traditional retrieval environments.

Like many other stages in the buying process, information seeking becomes more structured and constrained in the e-shopping environment. In particular, the ability to collect product information and make comparison between the different product offerings from different providers, possibly across national and currency boundaries, is often viewed as one of the main competitive challenges for e-shopping. (Rowley, 2000a)

With the development of the Internet, consumers have acquired even more power (Ibid.). In comparison with the real world, consumers online have more control because they can select what they want to view, when they want to view it, and if they want to view it at all (Korgaonkar & Wolin, 2002). More specifically, online shoppers appear to be attracted to the ease with which they can find information on the Internet, the detailed product information available, and the variety of choices offered (Ward & Lee, 2000). Though many Internet-enabled applications and services are available today, the primary use of the Internet (other than e-mail) is for information retrieval (France et al. 2002) Through the web, consumers can gather pricing information, participate in product design, explore promotions, consummate sales, arrange delivery, and receive post-purchase support. (Korgaonkar & Wolin, 2002) The Internet also provides, previously unheard of transparency, where buyers can be aware of just about all of the sellers out there (Singinidi, 2000), leading to the possible failure of the old one-to-one communication, which assume a passive, captive audience (Hoffman & Novak, 1996). On the Internet consumers feel like they cannot be seen or heard by other users. This
perceived anonymity enables them to take on new and/or multiple roles and selves, and consequently behave in different ways compared to the real world. (Tambyah, 1996)

No two consumers behave the same way, and one important difference when it comes to information search online is the amount of search consumers undertake, or in other words the different search activities that can be observed online (Pereria, 1999 & Rowley, 2000a). According to Pereria (1999) “it is crucial to further our understanding of why we observe different amounts of search across consumers online” (p. 158). France et al. (2002) as well as Beatty and Smith (1987) have pointed out that the extent of the consumer’s search depends on many factors, such as market environment, situational variables, knowledge and experience, individual differences, conflict and conflict-resolution strategies, and finally cost of search.

Traditional studies have found that consumers tend to engage in more search when purchasing higher priced, more visible, and more complex products—i.e., products that intrinsically create greater perceived risk. Search also seems to be influenced by individual factors, such as the perceived benefits of search (e.g., enjoyment, self-confidence, role), demographic aspects, and product knowledge possessed. In addition, search efforts tend to be further influenced by factors in the marketplace such as store distribution and by situational factors such as time pressure impinging on the shopper. (Beatty & Smith, 1987)

On the Internet some of the factors become even more important. For example, users have a wide range of different educational backgrounds and levels of experience with the system. Users range from being subject domain novices and computer novices all the way to subject experts and computer experts. The degree of knowledgeability of the computer user and the domain experience will have an effect on the search activity undertaken. Moreover, on the Internet consumers will make a range of different types of buying decisions, and it is to be expected, for example, that information-gathering habits will be different for different types of purchase decisions. Similarly, there will be a range of other factors, some associated with the buying decision, and others associated with the searcher’s experience and competence in performing searches that will influence search activities. (Rowley, 2000a)

Finding information on the Internet is also somewhat different from finding information through other avenues, both print and electronic. No controlled vocabulary exist for the Internet at large, nor is there an especially accurate index or table of contents for this resource. (Vaughan, 1999) Because of this an increasing number of tools have been developed to aid the retrieval of information from the Internet, for example search engines. These aids have moved from a small number of technically elegant, but not very user-friendly tools, towards more sophisticated and easy to use tools. (Brinkley & Burke, 1995)

The tools available on the Internet today, range from Web directories, search engines, portals, newsgroup searching, browsers, and shopping bots (Green, 2000, Rowley, 2000a, Rowley, 2000b). Jupiter Media Metrix (2001) reports that 47% of shoppers prefer to use search engines when searching for information on the Web. This finding was also presented by Iivonen and White (2001) who found that consumers prefer to use search engines slightly more than direct addresses and directories. The quality of search tools on the Internet differs and in the end the consumer has to make a choice about the search tool that is used, and this choice will determine search outcomes in ways that consumers are unlikely to recognize. (Rowley, 2000a) In addition, even tough there are search tools available to help consumers retrieve information “we are still far from the day when a user will be able to request anything on the Internet on a specific subject” (Brinkley & Burke, 1995, p.10).
Consumer information search online has also been greatly affected by the amount of information available to the consumer (Maity, Zinkhan & Kwak, 2002). Through the Internet, consumers can obtain product information and often make purchases with much less effort than through other distribution channels. Likewise, with the low cost of Web publishing, companies can offer more product information through this medium than most other. This results in more information being supplied to consumers than ever before. (Ward & Lee, 2000)

Plentiful product information may not alleviate all the problems of consumer information search on the Web for two reasons (Ward & Lee, 2000). First, despite the increased availability of product information it is still not costless to obtain (Brynjolfsson & Smith, 1999). On the Web, search for information may involve a non-trivial navigation of hyperlinks between Websites (Ward & Lee, 2000) but also an evaluation of the information’s credibility, which are both skills developed with experience (Hoffman & Novak, 1996). For many users finding product information may be frustrating and even though they would like to obtain all available information, they may not practically be able to do so (Ward & Lee, 2000). As a matter of fact, 46 percent surveyed in the GVU’s Ninth Survey (1998), indicated that they had trouble finding new information.

Second, because the Web offers a publishing forum to those with even limited knowledge and access to servers, useful information is mixed with poor and even totally inaccurate information. (Vaughan, 1999) In addition, due to the low cost of setting up a Website, unreputable firms offering low quality products could potentially claim their products are of high quality, earn a profit before the ruse is uncovered, and then quickly disappear. Thus, even though the Internet can easily provide more information than other distribution channels, the ease with which scams can develop may induce consumers to require more information in order to purchase. (Ward & Lee, 2000) This is also discussed by Poulter (1997, p. 142) who states:

“The Internet user is promised the ‘information superhighway’: what they actually get, when they try to navigate that highway, is an ever-changing maze of back roads leading to colorful road-side stalls offering ‘information’ trinkets of dubious value.”

According to Maity et al. (2002) the amount of information available on the Internet is abundant, and this affects the amount of information search that is ultimately undertaken by the consumer. Information overload acts as a factor that influences the pattern of search that occurs. The authors add, “too much information, in fact, acts as a deterring factor rather than an encouraging one”. (Ibid.) This is since, consumers are only able to process a certain amount of information and as a result, people appear to utilize some sort of heuristics in order to keep the information processing to an amount that they can handle. (Payne, 1976) Heuristics can be defined as shortcuts or mental rules of thumb that lead to a speedy decision (Solomon et al., 1999).

One way to reduce the information processing online, for the consumer, is to rely on one of the search tools available (Rowley, 2000b). These tools support the decision-making process of consumers who are shopping on the Web. Some of them even support multi-attribute heuristics such as elimination by aspect and the conjunctive rule. (Pereria, 1999) Internet-based services or search tools (e.g. search engines, shop bots, and directories) can provide one-click access to price and product information from numerous competing retailers. They
take a query, visit shops that may have the product sought, bring back the results, provide lists of summary information, and present them in a consolidate and compact format that allows comparison – shopping at a glance whenever required by searchers. In doing so, they substantially reduce consumer cognitive burden of information search. (Jiang, 2002)

Against the background of the rapid growth of electronic commerce and, more specifically, consumer online shopping it becomes increasingly important to develop a deeper understanding of consumers information search in electronic environments (Haubl, 2001). This study will therefore, strive for an understanding of consumer product information search on the Internet.

1.3 Purpose
The purpose of this thesis is specifically formulated as:

“To gain a better understanding of how consumers search for product information online”

1.4 Research Questions
The research questions are specifically formulated as:

- **Research Question 1**: How can the factors influencing product search activity online be described?

- **Research Question 2**: How can the preferred search tools for product information search online be described?

- **Research Question 3**: How can the problems associated with product information search online be described?

- **Research Question 4**: How can the shortcuts utilized for product information search online be described?

1.5 Demarcations
Because the time available for this study has been limited, and the aspects of the topic are many, an attempt to narrow down the focus has been made. The study will focus on information search for physical products rather than services because a lot of the information found online is mainly focused on these types of products. As the aim is to investigate product information search behavior online, from a consumer perspective, very little attention will be given to the perspective of companies.

1.6 Disposition of the Thesis
This thesis is divided in six chapters. In this chapter, the reader has received an insight to the field of study, followed by the problem discussion, a presentation of the overall purpose of the study, the research questions posed, and the demarcations of the study. In the second chapter the reader is provided with a literature review of previous research conducted within the area of the overall purpose, which serve as theories for the study. The frame of reference, following the literature review, further specifies the theories that will be used. Chapter three describes and motivates the choices of methodology made for this thesis. In chapter four, the collected empirical data is presented. The empirical data gathered is then analyzed in chapter five. In the final chapter, Conclusions and Implications, general conclusions are drawn based
on the findings of the research conducted. At the end of this sixth chapter implications for further research are presented. The disposition of the thesis is illustrated in Table 1.1 below.

Table 1.1 Disposition of the Thesis

<table>
<thead>
<tr>
<th>Chapter One:</th>
<th>Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter Two:</td>
<td>Literature Review and Frame of Reference</td>
</tr>
<tr>
<td>Chapter Three:</td>
<td>Methodology</td>
</tr>
<tr>
<td>Chapter Four:</td>
<td>Empirical Data Presentation</td>
</tr>
<tr>
<td>Chapter Five:</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Chapter Six:</td>
<td>Conclusions and Implications</td>
</tr>
</tbody>
</table>

Source: Authors’ own construction 2002
2. Literature Review and Frame of Reference

In the previous chapter an introduction and background to the research area of this study was presented, as well as the overall purpose and research questions. This chapter presents the literature review for the research area and will close with a frame of reference for this thesis, in which the literature to be used will be conceptualized.

2.1 Factors Influencing Product Search Activity Online

Factors influencing the search activity a consumer performs online can be found in a number of different theories both online and offline. The factors or variables that have been studied previously by different researchers tend to include market environment, situational variables, knowledge and experience, individual differences, and cost of search. The literature found will be presented accordingly. (Beatty & Smith, 1987, Jarvis, 1998, and Pratt, 1998)

Market Environment

According to Jarvis (1998) the market environment includes aspects such as difficulty of the choice task, number of alternatives, and complexity of the alternatives.

**Difficulty of the Choice Task**

Research has indicated that differences in the nature of the search task may have important effects on Web searching strategies and results. Researchers have, for example, found differences in search strategies and results according to type of task. (Ford, Miller & Moss, 2002) One helpful way to determine the difficulty of the choice task in the decision-making process is to consider the amount of effort that goes into the decision/choice each time it must be made (Solomon et al., 1999 & Jarvis, 1998). The difficulty can also be perceived differently depending on the type of product the consumer is about to purchase (Arens, 1996).

**Types of Decision-making**

In general, there are three types of decision-making, which vary in terms of how complex or expensive a product is and how involved a consumer is in purchasing it (Peter & Donnelly Jr., 2000). Moreover, consumer researchers have found it convenient to think in terms of a continuum, which is anchored on one end by habitual or routine decision-making and at the other extreme by extended problem-solving. Many decisions/choices fall somewhere in the middle and are characterized by limited problem-solving/decision-making. (Solomon et al., 1999)

**Routine decision-making** is the most common type and is the way consumers purchase most packaged goods. (Peter & Donnelly Jr., 2000) Many purchase decisions are so routinized that the consumer may not realize that they have made them until they look in their shopping carts. Choices characterized as automatic are performed with minimal effort and without conscious control. While this kind of thoughtless activity may seem dangerous or at best stupid, it actually is quite efficient in many cases. The development of habitual, repetitive behavior allows consumers to minimize the time and energy spent on everyday purchase decisions. (Solomon et al., 1999)

**Limited decision-making** is more moderate but still involves some time and effort searching for and comparing alternatives. (Peter & Donnelly Jr., 2000) Limited problem-solving is usually used for inexpensive, less complex products and more straightforward and simple. Buyers are not as motivated to search for information or to evaluate each alternative rigorously. People instead use simple decision rules to choose among alternatives. These
shortcuts enable them to fall back on general guidelines, instead of having to start from scratch every time one needs to make a decision. (Solomon et al., 1999)

**Extensive decision-making** requires the most time and effort, since the purchase involves a highly complex or expensive product that is important to the consumer. As a rule, purchase decisions that involve extensive search also entail some kind of perceived risk, or the belief that the product has potentially negative consequences. (Ibid.)

**Product Classification**
According to Arens (1996) there are many ways to classify products. One way is to classify products by their rate of consumption and tangibility:

- **Durable goods.** Durable goods are tangible products that are long lasting and infrequently replaced. Examples of these types of products are cars, trucks, refrigerators, and furniture.
- **Nondurable goods.** Nondurable goods are tangible products that may be consumed in one or a few uses and usually need to be replaced at regular intervals. Examples of these types of products are food, soap, gasoline, and oil.
- **Services.** Services are activities, benefits, or satisfaction offered for sale. Examples of services are haircuts, legal and medical services, massages, and travel. (Ibid.)

**Types of products**
An alternative way of classifying consumer goods is purchasing habits. Peter and Donnelly Jr. (2000) bring up three different categories of goods: convenience goods, shopping goods, and specialty goods.

- **Convenience goods.** Refers to purchases made frequently with a minimum of effort (cigarettes, food, newspapers). Impulse goods would also fall into this category.
- **Shopping goods.** Infrequently purchased items for which greater time is spent comparing price, quality, style, warranty (furniture, cars, clothing, tires).
- **Specialty goods.** Products with such unique characteristics that consumers will make special efforts to purchase them even if they are more expensive (fancy photographic equipment, special women’s fashions, stereo components). (Ibid.)

**Number of Alternatives**
The complexity of an information source can be influenced by how many different types of sources are available for a particular piece of information. When faced with more complex multiple sources of information consumers have been found to try and reduce the alternatives by elimination. (Jarvis, 1998) Because of the myriad of alternatives available today through the Internet, consumers typically consider a much smaller subset of information sources in their purchase decisions. It is expected that careful consideration will not be given to all of the available alternatives or even to all of the familiar ones, because of the cognitive processing demands involved in this process. Instead, the consumer is likely to engage in a multi-stage choice process whereby a small set of options is identified and a final choice is made after more detailed consideration through a process referred to as the phased narrowing of the consideration set. (Pereria, 1999)

**Complexity of the Alternative**
The complexity of the alternative is increased, for example, when an information source must be judged based on accuracy, timeliness, completeness and ease of use (Jarvis, 1998). According to Ward and Lee (2000) accuracy of the information is a major influence on search activity on the Internet. More specifically, the posing of inaccurate information online causes
problems for the consumers, who do not know what information to trust. Because of the low cost of creating a Web site, firms can claim to offer high quality products when in fact the products are of low quality. By doing so they can make some money and then disappear before anyone notices. Hence, consumers might require more information online from different sources before they can decide the accuracy of the information retrieved. (Ibid.) This is also mentioned by Vaughan (1999), who explains that the mixture of poor and totally inaccurate information found online affects the information seeking process for the consumer.

In a study conducted by Jarvis (1998) information retrieval from Internet Web sites were considered to be located in the middle of the accuracy scale by consumers, while salespeople and television advertising were both on the negative side. Friends and family were positioned on the positive side. The respondents in that study could not appropriately judge this source due to a lack of familiarity and discomfort with using the Web. An additional interesting finding in this study was the explanation that the respondents did not consider the information gained from Web sites as “commercial” material and therefore did not even consider or evaluate the original source of the Web site information. In addition, the Web had a significantly higher rating on how “informative” it was compared to salespeople, television advertising, or print advertising. (Ibid.)

**Individual Differences**
Consumers differ in the amount of search they tend to undertake, regardless of the product category in question due to individual differences. Two types of differences that can affect information search are motivational factors and demographics. (Solomon et al. 1999)

**Motivational Factors**
Little empirical effort has been devoted to motivational factors in consumer choice behavior. This has been particularly true in the study of information search behavior. “A motivating variable is a variable that activates behavior and provides purpose and direction to that behavior” (Beatty & Smith, 1987, p. 85). A particularly viable motivational construct that has not been empirically linked to external information search is involvement. (Ibid.)

Involvement. According to Beatty and Smith (1987) involvement constructs serve as motivational states resulting from perceptions of importance and as originators of open action. Consistent with a motivational perspective, product involvement can be defined as “an internal state variable that indicates the amount of arousal, interest or drive evoked by a product class” (Beatty & Smith, 1987, p. 85), which is consistent with definitions of other consumer psychologists. The authors suggest that under low involvement conditions, individuals engage in minimal search, while under high involvement conditions, individuals engage in extensive search. However, there appears to be very little direct empirical evidence of this linkage. (Ibid.) This is also brought up by Solomon et al. (1999) who state that as a general rule, search activity is greater when the purchase is important, when there is a need to learn more about the purchase and/or when the relevant information is easily obtained and utilized.

**Demographics**
According to Solomon et al. (1999) demographics are statistics that measure observable aspects of a population. Examples of demographics are age, gender, income, occupation, family structure, race and ethnicity, and geography. (Ibid.)
Age. Consumers in different age groups have very different needs and wants. While people who belong to the same age group differ in many other ways, they do tend to share a set of values and common cultural experiences that they carry throughout life. (Solomon et al., 1999) According to Taylor (1998), age and search effort are negatively related. More specifically, with increasing age, individuals accumulate a wealth of information and also perceive less need to seek information from external sources, resulting in an inverse relationship between age and search effort. (Ibid.) All things being equal, younger, better-educated people who enjoy the shopping/fact-finding process tend to conduct more information search (Solomon et al., 1999).

Gender. Women are more likely to search than men, as are those who place greater value on style and the image they present (Solomon et al., 1999).

Family Structure. A person’s family and marital status is yet another important demographic variable, since this has such a big effect on consumers’ spending priorities. (Ibid.)

Social Class and Income. People in the same social class are approximately equal in terms of their incomes and social status. They work in more or less similar occupations and tend to have similar tastes in music, clothing, and so on. They also tend to socialize with one another, and share many ideas and values. (Ibid.)

Race and Ethnicity. As our societies grow increasingly multicultural, new opportunities develop to deliver specialized products to racial and ethnic groups, and to introduce other groups to these offerings. (Ibid.)

Geography. Most of the evidence points to the fact that cultural differences persist in playing a decisive role in forming our consumption patterns and our unique expressions of consumption. (Ibid.)

Situational Variables
Most theories, addressing the role of information search activities in the consumer decision-making process, assert that search is a means by which consumers reduce uncertainty and perceived risk (McColl-Kennedy & Fetter Jr., 2001).

Perception of risk
Perceived risk refers to “the nature and amount of risk perceived by a consumer in contemplating a particular purchase decision” (Park & Stoel, 2002, p. 159). An important property of risk conceptualization within consumer psychology is that risk is thought to arise only from potentially negative outcomes, in contrast to other disciplines such as behavioral decision theory and other areas of psychology where both positive and negative aspects are considered when evaluating risk (Dholakia, 2001). According to Park and Stoel (2002), perceived risk is a function of two elements: uncertainty and consequences. Uncertainty comes from identifying buying goals and matching these goals with product or brand offering. Uncertainty is subjective as perceived by the consumer. For instance, consumers may be uncertain about the brand name that will meet and satisfy their buying goals. The consequences may be in regard to functional or performance goals, to psychosocial goals, or to the means such as money, time, and effort invested to attain those goals. (Ibid.)

The literature suggests that perceived risk and information search are positively correlated. In fact, risk encountered in a product or a service purchase can be reduced through increased
brand loyalty or by seeking additional information about the product or service. Logically, this implies that higher perceived risk associated with the purchase of experience-based products is more likely to result in heightened information search for the buyer. Conversely, the lower felt risk in the purchase of a search-based product suggests lower information search. (Mitra, Reiss & Capella, 1999) This is supported by Taylor (1998), who states that perception of risk and search effort is positively related. In addition, the author states that the perception of risk is also positively related to the perceived benefit of search. The reason is that as the uncertainty about the outcome of the purchase increases, consumers tend to engage in information search with the primary expectation that the search will help them reduce the perception of risk. (Ibid.)

**Knowledge and Experience**

According to Solomon et al. (1999) product experts and beginners use very different procedures during decision-making. While many studies have found positive effects of knowledge on search, several others have found negative effects, and still others suggest an inverted-U relationship (Fiske, Luebbehusen, Miyazaki, & Urbany, 1994, Solomon et al., 1999, Antonides & Van Raaij, 1994). According to Fiske et al. (1994) one needs to distinguish between two components of knowledge, which appear in discussions of the knowledge-search relationship. Usable Prior Information is a dimension of knowledge that refers to the quantity of directly relevant product information held in memory. The second dimension of knowledge is Prior Memory Structure, which refers to the consumer’s knowledge of the buying process and the knowledge associated with the product category in general. There are two reasons for distinguishing between the two. First, the two constructs may have different effects on search behavior. Second, while they likely develop in tandem over time, there are many situations in which existing Prior Memory Structure is relevant to a search problem, yet Usable Prior Information is not. (Ibid.) Below the different explanations of the knowledge-search relationship are reviewed.

**Positive Relationship**

The positive knowledge-search relationship reflects a facilitating effect of knowledge: more knowledgeable consumers have better developed cognitive structures in place, which improve their efficiency in gathering and processing new information. In addition, such consumers have more cognitive resources, which can be devoted to search, enhanced abilities to encode new information, and knowledge of what questions to ask in the search process. See Figure 2.1. on next page. (Fiske et al., 1994)

![Figure 2.1. The Positive Relationship Between Information Search and Amount of Knowledge](source: Adapted from Fiske et al. (1994), p. 44)
**Negative Relationship**

Usable Prior Information provides the most straightforward account of a negative knowledge-search relationship (see Fig. 2.2. below). If both internal and external Usable Prior Information are useful in helping a consumer make a choice, then the more information obtained prior to active search, the less the need for external search will be, and vice versa. A second general explanation for a negative knowledge-search relationship is a selective search effect, driven by Prior Memory Structure. This suggests that consumers high in Prior Memory Structure can identify and focus their search on important attributes and appropriate alternatives relatively quickly. (Fiske et al., 1994)

![Figure 2.2. The Negative Relationship Between Information Search and Amount of Knowledge](source: Adapted from Fiske et al. (1994), p. 44)

**The Inverted-U Relationship**

Combinations of the previously described effects could account for an inverted-U relationship. This is a theory that has been looked into by many researchers. (Solomon et al., 1999 and Antonides & Van Raaij, 1998) Solomon et al. (1999), for example, express that one would think that beginners who know little about a product, should be the most motivated to find out more about it, whereas experts are more familiar with the product category and hence, should better be able to understand the meaning of any new product information they might acquire. However, neither of these two categories searches more than the other. Instead, the level of search tends to be greatest among those consumers who are moderately knowledgeable about the product (see Fig.2.3. on next page). This is supported by Antonides & Van Raaij (1998), who say that it is likely that consumers with an average level of knowledge will seek most information.

The reasoning behind this is that people with very limited expertise may not feel they are capable of searching extensively. In fact, they may not even know where to start. Hence, they are more likely to rely on brands with which they are familiar at the same time as they focus on a small number of product features. The type of search undertaken by people with varying levels of expertise differs as well. Since experts have a better sense of what information is relevant to the decision, they tend to engage in selective search, which means their efforts are more focused and efficient. On the contrary, beginners are more likely to rely on the opinions of others and to rely on “non-functional” attributes, such as brand name and price, in order to distinguish the alternatives. (Solomon et al. (1999)
Ward and Lee (2000) have found indications that as individuals gain more experience using the Internet, they are likely to search more for alternative sources of information and be less reliant on product branding. This is somewhat in accordance with what Hoffman and Novak (1996) have noted. They found that consumers need a certain amount of knowledge before they develop the proper skills to flow in an intermediated environment such as the Internet. In addition, beyond merely finding relevant information, the customers must evaluate its credibility. (Hoffman & Novak, 1996 and Debowski, 2001) According to Ward & Lee (2000), time and experience are required to learn the credibility-assuring institutions that have developed on the Web.

In general, navigating and evaluating information found on the Web can be difficult. Looking for information from search engines, directories and portals are skills developed with use. (Debowski, 2001) Ward and Lee (2000) have noted that a certain amount of experience is needed before one develops the proper skills to flow in an electronic environment such as the Internet. Moreover, beyond merely finding relevant information, one must evaluate its credibility. (Ibid.)

Cost of Search
Information collection and processing often involves financial and time costs (Antonides & Van Raaij, 1998).

Financial Cost
The financial costs include travel and telephone costs among other things. The financial costs and behavioral costs are weighed against the expected advantages of a better decision. (Antonides & Van Raaij, 1998) According to Smith (2000), decision makers may prioritize search according to anticipated “payoff”. First, market alternatives are gathered that offer the highest reward for search effort, and search continues until the sampled reward exceeds the expected rewards available elsewhere. (Ibid.)

High search cost situations have a notable effect: they reduce the number of potential products that may be searched within a limited time frame. Thus, buyers will rationally prioritize and limit search to more rewarding opportunities that should be present with higher priced products, and forgo search on less rewarding opportunities at lower price points. Consequently, when search costs are high, lower priced products will receive residual emphasis and priority. Therefore, when searching on lower priced products, buyers will reduce search when confronted with higher search costs. But when search costs are low, they
will expand search because lower marginal search costs facilitate search from among more alternatives. (Smith, 2000)

**Time Cost**

According to Jiang (2002), the ability and the perceived reduction in time cost to search increase search activity. More specifically, the more accessible the information is in the environment, the lower the cost will be to search and process the information. Further, consumers form intentions for collecting information and the ease of collecting this information influences whether or not their intentions are fulfilled. Information accessibility was employed as a term to deal with the extent to which information is available and accessible to the consumer in a format that the consumer can use. (Ibid.)

In fact, electronic marketplaces that facilitate a great deal of price search deal with this idea in that the goal is to make information more accessible and easier to process so that consumers will be more informed before making purchases. It is proposed that when consumers can easily access information, their use of this information will increase because the cost of searching for the information is reduced. Information accessibility will be higher when consumers are aware of the availability of information and it is in a format that is easy to understand. When the cost of information search is low, customers will use more information in evaluating alternatives. (Ibid.)

Time pressure reflects the consumer's perception of the availability of time and is expected to increase. Beatty and Smith (1987) found that search increases with greater time availability. Moreover, the medium used by the customer can affect information search. Research suggests that search costs are lower when the time required is typically lower. The perceived quickness of search in the electronic marketplace can be measured as "time per search task". (Jiang, 2002)

To the extent that ease of search and accuracy of search engines enhance the efficiency of search for consumers, time per search task is likely to decrease. Consequently, time per search task is employed on the assumption that it undermines efficient search functioning, which implies that time cost should have a negative influence on search efficiency. Ultimately, time is the only cost factor that remains significant for search in the electronic marketplace. (Ibid.)

### 2.2 Preferred Search Tools for Retrieving Product Information Online

A Web search is the process of accessing information available in the global information system of the Web (France et al., 2002). The Web is a collection of information of all kinds. However, the selection, organization, and retrieval of Web materials are not standardized and wide variations exists in the access capabilities of Web search tools. (Spink, Bateman & Jansen, 1999) The difficulty of finding information on the Web has been widely recognized, both directly and indirectly, in the production of a large number of tools to aid the search process. (Thelwall, Binns, Harries, Page-Kennedy, Price & Wilkinson, 2001)

**Most Preferred Search Tools**

There are many different types of search tools on the Internet today (Green, 2000), but what do consumers use the most? (Bruemmer, 2002) Publicly accessible search engines have grown at a high rate during the past few years. This has been in response to a large number of companies going online. (Maity et al., 2002) One of the most popular ways of finding product information on the Web is by using search engines like Yahoo!, Hotbot/Lycos and Excite (Lindström & Andersen, 2000). According to Jupiter Media Metrix (2001), 47 percent of
shoppers prefer search engines when searching for product information online. This is somewhat in accordance with Thelwall (2001) whose survey has shown that Web directories and search engines are amongst the most popular search tools on the Internet.

Tools Available For Retrieving Information Online
There are other search tools that consumers may use to locate product information online. The search tools available fall into two categories: general purpose search tools, such as browsers and search engines, and specially designed tools, such as shopping bots. This section first considers the general search tools, partly because some product searching will be directly through such tools, but also because shopping bots are sometimes embedded in, or offered as a feature in, a search engine (Rowley, 2000a).

General Search Tools
According to Rowley (2000a) there are two approaches to searching: those offered by browsers, which exploit hyperlinks between documents or sites, and search engines, which perform searches on the basis of words or phrases, through the use of a large index of Web resources.

Browsers
Browsers rely on the network of hyperlinks that are embedded in documents. These links are created through a combination of:

- an addressing system that allows the location of any object stored on a networked computer to be uniquely identified by a uniform resource locator (URL);
- a markup language (HTML) that allows the authors of documents to identify a particular location within their documents as the source of links, and to specify the location of the target of those links;
- a transfer protocol (HTTP) that allows copies of target documents stored on remote servers to be retrieved and displayed;
- a client program, or Web browser such as Netscape Navigator or Internet Explorer that provides the user with control over the retrieval process and over the links to be activated. (Ibid.)

Typically browsers are used in product searching when the shopper knows the URL of the site that they wish to visit. This will be the case if they have already established a relationship with the merchant, and have visited the site before, or, if they have been subjected to positive word of mouth recommendations from family and friends, or strong promotional messages in electronic and other media. For example, many users when buying a book will immediately visit Amazon.com or Amazon.co.uk, because their awareness of the Amazon brand name has been raised through heavy investment in promotion. Comparison shopping is unlikely to be a feature when using browsers. (Rowley, 2000b)

Search Engines
Search engines work as enormous databases, where the search is carried out by giving the search engine one or more keywords. (Lindström & Andersen, 2000) Search engines are essentially query generators that use key words and logical relationships to find Web documents or files that meet the search requirements and create a "virtual" document (the search results) containing links to the documents found in the search. The uniform resource locator (URL) of the documents that have been found can then be used to link to those documents or files for viewing. (France et al., 2002) The primary application of search
engines is to provide access to the resources that are available on the Internet, and stored on many different servers. (Rowley, 2000a)

Most search engines are free, with their financial support coming from advertising revenue and through sales of the underlying technology. Indeed, the advertisements embedded in these search engines may be a way for the consumer to get into a specific merchant’s site. Today there are many search engines available. Some have more complex logic operators and/or present their results in a more "user friendly" manner. (Rowley, 2000a, Rowley, 2000b)

It is; however, fair to say that Internet-based information retrieval would collapse if search engines were not available. While word-of-mouth pointers to pages from friends, acquaintances, and others are very useful and while the live hypertext links of the Web make Web sites and the Web a rich and convenient source of information, these means of searching the Internet do nothing for the user who does not even know where to begin looking, which is the job of search engines (Gordon & Pathak, 1999).

Search engines provide three chief facilities:

- they gather together (conceptually, anyway) a set of Web pages that form the universe from which a searcher can retrieve information;
- they represent the pages in this universe in a fashion that attempts to capture their content; and
- they allow searchers to issue queries, employing information retrieval algorithms that attempt to find most relevant pages from the universe. Search engines differ somewhat from each other along all these dimensions (Ibid.).

Search engines vary in coverage of sites, search facilities and process, and the presentation of the outcomes or results. It is also important to remember that some search engines are available in different versions for use in different countries. In addition, it should be noted that search engines not only exist as separate Web sites that search the entire Web, but also exist on specific e-retailers sites. E-retailers with large catalogues of products need a search engine to support users in finding their way through their product range. This is typically likely to be the case for retailers involved in selling books, CD-ROMs and music. (Rowley, 2000a)

Some search engines also offer advanced search facilities, enabling users to submit complex queries. This is since some requests can only be answered with advanced search facilities. However, it is has been found that relatively few searches actually include these facilities. (Thelwall et al., 2001) One reason for the lack of use of the advanced queries has been suggested to be that they give only minor improvements in what is retrieved (Jansen, 2000).

Comparison shopping when using search engines is possible, but time consuming, since it will be necessary to visit a number of different sites to compare the products on offer from different merchants (Rowley, 2000b).

**Web directories**

A Web directory is a pre-defined list of Web sites, which is compiled by human editors and categorized according to subject/topic. Because humans compile Web directories, a qualitative decision concerning the content on each listed Web site has already been made. Consequently, Web directories are popular with Internet users looking for particular information because they feel that they have a head start in identifying “the best of the Web”
for the topic they are interested in. In a broad sense, any Web site that comprises several pages of organized links can be considered a Web directory. (Green, 2000)

One may search with Web directories via menus of the added subject headings, or through keyword searching. The maintenance of such directories is a labor-intensive process, which means that the search service is selective in the sites that are included. However, selection reduces the amount of garbage that can often present real problems in searching on the Internet. (Rowley, 2000a) If a suitable category exists, then this approach should only yield sites that are relevant to that specific information need (Thelwall et al. 2001).

**Newsgroup Searching**

While the Web is the primary repository of human knowledge on the Internet, it is not the only one. Newsgroups, where collections of individuals share their experiences, knowledge and opinions on a subject of common interest, constitute an important area of consideration for information retrieval. The distinction between the Web and newsgroups is that the Web primarily represents a large body of explicit human knowledge whilst newsgroups primarily represent a large body of implicit knowledge. (Green, 2000)

Today there are literally thousands of newsgroups covering all manner of topics (Ibid.). Green (2000) is of the opinion that the role of specialized newsgroup search engines will become more important as individuals use the Internet to seek out experts, or anyone that is qualified, to help with their problems.

**Specially Designed Tools**

**Shopping bots**

Bot is an abbreviation for robot. Shopping bots are tools that help e-shoppers to identify, locate, and compare products available from e-tailers. (Rowley, 2000b) They take a query, visit shops that may have the product sought, bring back the results, and present them in a consolidated and compact format that allows comparison shopping at a glance. (Rowley, 2000a) There are a number of different kinds of bots designed to fulfill different purposes, such as software bots, stock bots, update bots, fun bots, chatter bots, and news bots (Rowley, 2000b).

Coverage varies both with respect to product range, sites and virtual retailers or catalogues covered, and frequency of updates to data accessed. Therefore, not every search through the search tools can produce what is exactly desired. Bots use a variety of algorithms to perform searches with keywords. Some also offer product comparisons, reviews and pricing services. Customers can at some shopping bots specify a range of choices by checking off boxes. Other shopping bots can use a range of indicators to perform a personal life style analysis and use this as a basis for recommending specific products. MySimon is an example of an intelligent bot that can imitate human navigational behavior and can be taught to shop at thousands of merchants in hundreds of product categories. (Rowley, 2000a)

Coverage of shopping bots can be defined in terms of e-merchants, product categories, and geographical coverage. A good coverage of e-tailers is important if individual consumers are to have a range of product options. Ultimately, however, the product portfolio of the bot is dependent upon the product portfolio of the sites to which it provides access, and there is a mutuality of interest in this relationship. (Rowley, 2000b)
How Consumers Utilize Search Tools

Iivonen and White (2001) have found that previous studies about Web searching indicate that Web searchers prefer known sites, browse on the Web, and use rather simple searches if they use search engines. Furthermore, Jupiter Media Matrix (2001) has found that consumers have different ways of searching for product information online, which is presented in Table 2.1.

Table 2.1. How Consumers Search for Product Information Online

<table>
<thead>
<tr>
<th>Method</th>
<th>Percentage of consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type product name in search engine</td>
<td>28%</td>
</tr>
<tr>
<td>Go straight to store URL</td>
<td>23%</td>
</tr>
<tr>
<td>Type brand name in search engine</td>
<td>9%</td>
</tr>
<tr>
<td>Type store name in search engine</td>
<td>5%</td>
</tr>
<tr>
<td>Go to shopping channel of search engine</td>
<td>5%</td>
</tr>
</tbody>
</table>


Iivonen and White (2001) have also found that there are differences in how consumers search depending on what country and culture they come from. In their research they studied and compared how Americans and Finnish students searched for information on the Internet. The authors found that the participants in their study differed significantly in the choice of initial search strategy. The Americans were rather evenly split across three different alternatives (search engines, direct address and Web directories), relying slightly more on search engines than the other two. The Finns, on the other hand, were more concentrated in their use of search engines and used, in order, search engines, direct address and Web directories. They used search engines more than the Americans and relied much less than the Americans on Web directories. (Ibid.)

2.3 Problems Associated with Product Information Search Online

In general, when it comes to problems on the Web, finding information or information seeking is one of the most significant ones (Vaughan, 1999). Internet-based services (e.g. search engines, shop bots) can provide one-click access to price and product information from numerous competing retailers. They take a query, visit shops that may have the product sought, bring back the results, provide lists of summary information, and present them in a consolidated and compact format that allows comparison - shopping at a glance whenever required by searchers. In doing so, they substantially reduce consumer cognitive burden of information search. Less dependence on human perceptual abilities, on the other hand, will increase the dependence on the efficiency of online search facilities for skimming information and making choices. (Kline, 2002)
Literature Review and Frame of Reference

The quest for the perfect search tool has become the Holy Grail for many today. Consequently, each new search tool is evaluated all the time. As the tools are evaluated, new reasons for encouragement is found, but ultimately, the tools still leave some basic needs unmet. One way to articulate these problems is to loosely group them into four categories: (1) Searching difficulties; (2) retrieval issues; (3) document discrimination problems; and (4) interface design quandaries. (Ibid.)

**Searching Difficulties**

Perhaps the greatest challenge of all is translating a mental desire for information into an effective query for a search tool. Information tools have traditionally used two query styles: controlled vocabulary and keyword searching. Controlled vocabularies are useful because they express concepts using a standardized set of terms. Unfortunately, users often have trouble discovering the proper terms for a concept and understanding how that concept relates to others. Keyword searching allows more flexibility in expressing a search, but it creates its own set of problems. One of the most interesting challenges is disambiguating words that have multiple meanings. The word rock can represent a natural object, a musical style, a motion, or a form of cocaine. To understand which meaning a searcher intends, a search systems must either ask directly or infer the meaning from other terms included in the search. Spelling can also be a challenge. Several services, including SearchSpell and Google, suggest alternative spellings. For topics that are difficult to locate, inclusion of synonyms can be very helpful for broadening a search. However, none of the current search tools have a truly robust synonym finder, which creates problems. (Ibid.)

These problems have also been identified by Thelwall et al. (2001) who state that one of the most important problems that consumers face when trying to retrieve information from the Web is that they have difficulties in formulating queries specific enough to find relevant pages. The authors also mention that some information needs, however, are intrinsically more difficult to satisfy due to problems of semantics. For example, a user searching for “warehouses” may be surprised by the number of pages referring to software warehouses, rather than buildings, returned. (Ibid.)

**Retrieval Issues**

Once a search is performed, the next problem is dealing with the documents retrieved. As search sets continue to grow, managing the results of information retrieval becomes an increasingly pressing problem. (Kline, 2002) Recent trends in search tool development have been driven by the need to identify the pages on the Web that are most likely to satisfy any given information request (Thelwall et al., 2001). In order to do so, search tools typically use some form of relevancy ranking for results, weighting items in the results list according to how many search terms the site contains, how frequently those terms appear, placement of terms within the site, and other criteria. (Poulter, 1997 and Thelwall, 2001) Another attempt has been to measure the perceived quality of information on a page by the number of links to it, with the rationale that a page that is the target of many links is more likely to contain useful information than one that have few links to it. This development will also mean that information that is only needed infrequently will be harder to find, and hence, create problems for the information seeker. (Thelwall et al., 2001) Despite the attempts made by search tool creators to improve the relevancy ranking for results, a common complaint of search engine users is still that the information returned is not relevant to them (Gordon & Pathak, 1999).

A fundamental information retrieval problem is that after a query is made the search tool may present links to sites that are only slightly related to the query or to sites that only contain part
of the search query. The query text may also be elsewhere on the site, may be scattered throughout the site, or may even not be presented at all. This increases the problem of irrelevant sites being retrieved by the search tool. (Thelwall et al., 2001) In addition, GVU’s ninth survey (1998) bring up that one of the consumers’ most significant problems on the Web has to do with broken links and links that are too old. According to Vaughan (1999) there are problems for the users in the quantity, precision, and readability of the results that is received from the searches. “It’s nice to get 500 hits, but if 400 of them aren’t really on target or if all you get back is a hyperlink with no explanation, you’re not likely to benefit much.” (Ibid., p. 3)

Another significant issue is that search engines do not index all sites equally, and new pages may not be indexed for months after they are placed on the Web. Studies have shown that no single search engine indexes more than about 16 percent of the Web, making much of the information on the Web effectively inaccessible. (France et al., 2002) In addition, more than 250,000 new pages appear on the Internet every day. This huge amount of pages on the Web leads to confusing results from search engines, often producing more than a thousand link opportunities per search query. (Lindström & Andersen, 2000)

Document Discrimination Problems

Even with the best relevancy ranking, search results can be overwhelming (Kline, 2002). A typical complaint in using search tools is that they produce an excess amount of results. To a large extent, this is simply a side effect of the number of pages that are present on the Web and the poor performance of ranking algorithms. However, there are other issues that can make the overload of results even worse. For example, people trying to advertise their sites on the Web have discovered “index spamming”, that is putting irrelevant, but frequently sought words (e.g. “sex”, “football” etc.) on their pages to make sure their sites are retrieved by common searches, whether relevant to the search or not. A more subtle form of index spamming is of a web page being overfilled with repeated keywords, for example, “Bermuda” and “holiday,” to push this page to the top of any ranked results list for a search on holidays in Bermuda. (Poulter, 1997)

Typically a search will produce either too many or too few results. An in-depth knowledge of any advanced query facilities for particular search tools can go some way towards coping with the amounts of results they typically produce, by attempting more refined searches. Too few results can be a hint to the user that something is wrong with the choice of search terms, or that the wrong search engine is being used. (Poulter, 1997)

As the Internet continues to grow, it becomes increasingly important to create search tools that target specific kinds of information (Kline, 2002). Some search tools have adopted this kind of facility. One example is Google, which offers the facility to search within any category that is provided on its Web site. This narrows the search and reduces the number of links retrieved. (Thelwall et al., 2001)

Interface Design Quandaries

Having a great search tool is not enough; if the interface is poorly designed users will walk away (Kline, 2002). A search tool must have a powerful and usable interface. That is the make-or-break point. If the search is difficult to configure, the user is not likely to return to that tool; if the interface is too simplistic, the user will not be able to customize his or her query to pinpoint the search. (Vaughan, 1999)
A typical problem that users of search tools might have is that the general help and searching instructions presented are generally inadequate and are often confusing and even ambiguous. Explanations can be long and pitched at too high of a level for most users and search examples might be missing or out of date. In addition, there is no consistency or transferability between search tools so the user has to learn the individual tools, which takes time. (Poulter, 1997) This is supported by Rowley (2000a) who states that not only are the search facilities available through search tools relatively complex for the novice user, but there is also a significant variability between the different search tools.

The design of Web search engines is generally driven by technological criteria and technology-related algorithms, and is found lacking in many respects when evaluated by users (Spink, Bateman & Jansen, 1999).

2.4 Shortcuts Utilized when Searching for Product Information Online

It has long been known that too much information slows decision-making. Human beings are capable of processing information only up to a certain point – a point to which the perceived marginal benefit obtained is more than the perceived marginal cost. Once this point is reached, there is no further processing of information, and decisions are made on whatever has already been collected. (Maity et al., 2002) Perhaps the most important generalization to come out of efforts to study human information processing is that an individual is a limited information processing system. In particular, the active processing of information occurs in a memory of limited capacity, duration, and ability to place information in more permanent storage. As a result, people appear to utilize heuristics that serve to keep the information processing demands of a task within the bounds of their limited cognitive capacity. (Payne, 1976)

Marketing literature provides evidence that consumers frequently use some type of simplification heuristic prior to making choices. (Maity et al., 2002) They do this in order to reduce the amount of information they have to search and evaluate in making a decision (Payne, 1976). Heuristics can be defined as “problem-solving methods that tend to produce efficient solutions to difficult problems by restricting the search through the space of possible solutions. The restriction on search is based on evaluation of the structure of the problem.” (Payne, 1976) Solomon et al. (1999) further clarifies the definition by comparing heuristics with mental shortcuts or mental rules-of-thumb that lead to a speedy decision for the consumer.

When information is incomplete, judgments often are derived from beliefs about co-variation, or perceived associations among events that may or may not actually influence one another. Other signals or attributes believed to coexist with good or bad products include well-known brand names, country of origin, price, and retail outlets that carry the product. Consumers also often form assumptions about companies, products and shops. These market beliefs then become the shortcuts that guide their decisions – whether or not they are accurate. (Solomon et al., 1999)

The same restriction on search that increases efficiency may, at times, result in individuals ignoring or misusing information in reaching a judgment or achieving a solution to a problem. Heuristic processes, in other words, are procedures used by individuals that sacrifice the certainty of a correct judgment for increased efficiency in the process. (Payne, 1976)
Types of Heuristics
Heuristics may be stored in memory like miniature scripts that are applied fairly automatically to information encountered in the environment. Or they may be constructed on the spot in response to the immediate environment. Three types of heuristics that are particularly important are search heuristics, evaluation heuristics, and choice heuristics. (Peter & Olson, 1993)

Search Heuristics
Search heuristics are simple procedures for seeking information relevant to a goal. Some consumers have a simple search rule for buying any small durable product such as radio or kitchen appliances, for example, read the product tests in consumer reports. (Ibid.)

Online Search Tools
According to Pereria (1999) some of the tools available online for information retrieval function as shortcuts or heuristics for the information seeker. These tools offer one-click access to product information and price from several merchants on the Internet. Consequently they reduce the burden of product information search for the consumer. (Jiang, 2002) An example of these tools is shopping bots, which claim to eliminate the searching necessary to identify the right product at the best price (Rowley, 2000a).

Brands
A brand is the combination of name, words, symbols, design, or any other features that are characteristic to the product and distinguishes it from competing products (Arens, 1996). A good brand can create feelings of trust, confidence, security, strength, and many other desirable characteristics (Peter & Donnelly Jr., 2000). However, most importantly brands offer instant recognition and identification for consumers. They also promise consistent, reliable standards of quality, taste, size, or even psychological satisfaction. (Solomon et al., 1999)

According to Doh (2001), brands are a source of information that lowers the search cost for a consumer. A general conclusion is that, since search is costly, in terms of time and effort, consumers will stop short of becoming perfectly informed. Hence, if brand advertising signals useful product information, consumers may rely on it as an “expensive” source of information. Consequently, consumers can rely on well-known brands as shortcuts in evaluating information online. (Ward & Lee, 2000)

According to Ward and Lee (2000), brand names are substitutes for consumers’ direct information gathering – at least on the Internet – and thus may contribute to market efficiency. In their study Ward and Lee (2000) have found that consumers with more Internet experience tend to rely less on brands. This is since they are more proficient at searching for information on the Web. Furthermore, the authors noted that inexperienced Internet users relied more on brands as shortcuts since they had not developed the skills to search for information. (Ibid.) This is somewhat in accordance with Mandrik (1996) who states that consumers with low experience are more likely than experts to rely on some heuristic cue. In addition, the author explains that inexperienced consumers more often rely on the brand awareness heuristic. (Ibid.) However, Solomon et al. (1999) have expressed that people sometimes form such strong preferences for a brand that they may never change their minds about it.

---

2 Cost in terms of time cost, psychological cost, and physical cost (Doh, 2001).
3 “Buy the best known brand” (Mandrik, 1996)
Evaluation Heuristics
Evaluation heuristics are procedures for evaluating and weighting beliefs in terms of the current goal being addressed in the problem-solving process. Dieting consumers may have a heuristic that identifies the most important choice criteria for food; for example, low calories and the resulting consequence of losing weight. (Peter & Olson, 1993)

Choice Heuristics
Choice heuristics are simple procedures for comparing evaluations of alternative actions in order to choose one (Ibid.). A simple choice heuristic, which has been referred to by Mandrik (1996) as the habitual heuristic, is to select the alternative you bought the last time. That is, if it was satisfactory. (Peter & Olson, 1993) Furthermore, according to Maity et al. (2002) as information overload increases on the Internet, the probability of consumers revisiting the same Web sites, which they have positive associations, increases.

2.5 Frame of Reference
From the literature reviewed, a frame of reference for data collection emerges. A frame of reference can be explained as the main dimensions to be studied, the factors or variables, and the presumed relationship between them or, in other words, something that explains, either graphically or in narrative form, the main things to be studied. (Miles & Huberman, 1994) Among the theories presented in the literature review, the concepts that are perceived most relevant for this research will be chosen, in order to turn the research questions posed into something that data can be collected on. All concepts selected are chosen on the basis of their potential strength as topics for data collection. This section will be presented in order of the previously stated research questions.

2.5.1 How Can the Factors Influencing Search Activity Online Be Described?
The first research question aims at investigating factors that can influence the search activity, or the amount of search, consumers undertake online. As in the literature review, each of the main variables brought up by Beatty and Smith (1987) will serve as topics here when conceptualizing the literature. When collecting data, the attempt will be to see to what extent, if at all, the literature is applicable for the respondents.

Market Environment
According to Jarvis (1998) the market environment include the following aspects:

The difficulty of the choice task. Previous research has indicated that the difficulty of choice task affects the search activity, which varies with type of decision to be made, as well as the type of product (Solomon et al., 1999, Arens, 1996, and Peter & Donnelly Jr., 2000)

- The type of decision-making and hence, the search activity varies depending on how complex and expensive a product is. (Solomon et al., 1999 and Peter & Donnelly Jr., 2000). As these are traditional theories, the aim is to see if the behavior is the same online.
- The product classification by Arens (1996) will be excluded in this study. This is due to the fact that the product classes “durable goods” and “nondurable goods” are very similar to two of the “types of products” mentioned by Peter and Donnelly Jr. (2000) (see below), which will be used instead. In addition, as mentioned in the demarcations, this study focuses on physical product information search and therefore, the product class “services” is not suitable.
People tend to differ in their purchasing habits depending on the type of product (Peter & Donnelly Jr., 2000). This too, is a traditional theory, therefore, the aim is to see if the type of product sought for influences search activity online.

**Number of Alternatives.** As the Internet today provides a myriad of numbers of alternatives in terms of providing information, consumers are likely to only research a smaller amount of sources (Pereria, 1999). Therefore, the aim is to investigate if the number of alternatives available affect consumers’ search activity online.

**Complexity of the Alternatives.** Accuracy of information has been mentioned in the literature as a factor, which influences search activity online (Ward & Lee, 2000 and Vaughan, 1999). Thus, it will be investigated to see if this proves to be true in this study.

**Individual Differences**

Motivational factors and demographics are two types of individual differences, which can affect information search. First, as involvement has been brought up in literature as an especially vital motivational factor that has not been empirically connected to external information search (Beatty & Smith, 1987 and Solomon et al., 1999), the aim is to see if it is applicable to the search activity online. Second, the demographics (Solomon et al., 1999 and Taylor, 1998) will only be considered to a limited extent. More specifically, demographics will be considered in the sampling selection and the cross-case analyses.

**Situational Variables**

It has been suggested in the literature that perceived risk and information search are positively correlated (Mitra et al., 1999 and Taylor, 1998). Hence, it is the aim to investigate if this is applicable when searching for information online.

**Knowledge and Experience**

Regarding knowledge and experience in traditional theories, many researchers have found positive effect of knowledge on search, while several others have found negative effects, and still others an inverted-U relationship (Solomon et al., 1999 & Fiske et al., 1994). In addition, Ward and Lee (2000), Hoffman and Novak (1996), and Debowsk (2001) have found a positive relationship in online environments between the individuals’ Internet experience and search activity. Therefore, it is relevant to test the traditional theories in regards to the Internet and how well they stand in this new environment. In an attempt to clarify the relationship between knowledge and information search in electronic environments, the variable “amount of knowledge” (see fig. 2.1, 2.2, and 2.3) will be substituted with “Internet experience” to see which one(s), if any, of the relationships are valid. This can be done based on the fact that knowledge of how to use the Internet is something that is needed when searching for information on the Internet (Hoffman & Novak, 1996 and Debowsk, 2001). The three modified relationship models are presented on the following page as figure 2.4, 2.5, and 2.6.
Cost of Search

According to Smith (2000) and Jiang (2002), cost of search has a negative influence on search activity on the Internet. More specifically, the two costs mentioned are financial and time costs. Both variables will be investigated in order to determine their influence on search activity online and thereby, either falsifying or confirming what has been stated in the literature.

2.5.2 How Can the Preferred Search Tools for Product Information Search Online Be Described?

Research question two is aimed to investigate what search tools consumers prefer to utilize when searching for product information online.

Most Preferred Search Tools

Jupiter Media Metrix (2001) and Thelwall (2001) have suggested that search engines and Web directories are the most preferred search tools online. Hence, the participants will be
asked to rank their preferred search tools, in order to see if what the authors have suggested, is applicable.

**Tools Available For Retrieving Information Online**

There are several different search tools available online, which have been mentioned by different authors (Rowley, 2000a, Rowley, 2000b, Lindström & Andersen, 2000, Gordon & Pathak, 1999, Green, 2000, and Thelwall et al., 2001). All these search tools can be divided into two groups: general search tools and specially designed tools, as discussed by Rowley (2000a). The aim is to investigate if, how, and why the search tools are utilized when searching for product information online. More specifically, the search tools that will be investigated are:

**General Search Tools**
- **Browsers** are a form of search tools that can help the consumer in their information seeking (Rowley, 2000a and Rowley, 2000b).
- **Search engines** today are used by many consumers in their information search as it brings results from the entire Web (Lindström & Andersen, 2000, France et al., 2002, Rowley, 2000a, Rowley, 2000b, Gordon & Pathak, 1999, Thelwall et al., 2001, and Jansen, 2000).
- **Web directories** are another form of search tool that assist consumers in their information seeking online, by providing humanly edited categories according to subject (Green, 2000, Rowley, 2000a and Thelwall et al, 2001).
- **Newsgroup searching** as a form of implicit knowledge and information source (Green, 2000).

**Specially Designed Tools**
- **Shopping bots** are one-stop information providers, where consumers can locate and compare products and information from many different merchants (Rowley, 2000a and Rowley, 2000b).

**How Consumers Utilize Search Tools**

In order to gain a better understanding of how consumers utilize search tools, the findings from Jupiter Media Metrix (July, 2001) will be compared to the participants’ search habits, in order to gain an understanding of how the respondents search online and with what tools.

**2.5.3 How Can the Problems Associated with Product Information Search Online Be Described?**

The aim with the third research question is to gain insight into what problems consumers are facing when searching for product information online. A few different authors have discussed some general problems connected with information search (Vaughan, 1999, Kline, 2002, Thelwall et al., 2001, Payne, 1976, Maity et al., 2002, and Solomon et al., 1999). These problems have been grouped into four categories as stated by Kline (2002), which will all be investigated in order to determine their relevancy for the three cases. The four categories are:

**Searching Difficulties**

According to Kline (2002) and Thelwall et al. (2001), a first potential problem that users often have is how to specify their search query in a way that is understood by the search tool. Another issue discussed in literature is that of disambiguating words.
Retrieval issues
According to Kline (2002), Thelwall et al. (2001), Poulter (1997), Thelwall (2001), Gordon and Pathak (1999), GVU’s ninth survey (1998), and Vaughan (1999), there are also problems in dealing with the documents retrieved. Many of the results are not relevant to the search query and consumers perceive this as a problem.

Document Discrimination Problems
Due to the amount of information on the Web today, managing the results of information retrieval is becoming an increasingly important problem (Kline, 2002). According to Vaughan (1999) and Poulter (1997), the problem is in the quantity of the results that is received through search tools.

Interface Design Quandaries
According to Kline (2002), Poulter (1997), Rowley (2000a), and Spink et al. (1999), the design of the search tool can also cause problems. Vaughan (1999) further develops this discussion by stating that the design of a search tool cannot be too simplistic or too difficult to configure, otherwise it will cause problems for many users.

2.5.4 How Can the Shortcuts Utilized for Product Information Search Online Be Described?
The aim with research question four is to develop an understanding of the shortcuts or heuristics that are used when searching for product information online. As stated by Maity et al. (2002) consumers utilize shortcuts or heuristics in order to reduce the information they have to search for. In order to find the shortcuts/heuristics utilized online, a few different theories, both traditional and Internet related, will be investigated. The following concepts will be used to collect data.

Types of Heuristics
According to Peter and Olson (1993) there are three important heuristics that need to be considered in consumer behavior and can also be related to information seeking.

Search heuristics. The literature suggests that there are simple procedures for searching the information wanted. Two shortcuts that have been brought up in the literature are online search tools (Pereria, 1999, Jiang, 2002, Rowley, 2000a) and brands (Arens, 1996, Peter & Donnelly Jr., 2000, Doh, 2001, Ward and Lee, 2000, Mandrik, 1996, and Solomon et al., 1999). Thus, it will be investigated if, how, and what shortcuts are utilized when searching for product information online.

Evaluation heuristics. The evaluation heuristics are excluded in this thesis, because they are more related to the actual evaluation of alternatives instead of the search for product information and are therefore, not related to the subject being studied.

Choice heuristics. A simple choice heuristic is to select the alternative that was selected the last time. (Peter & Olson, 1993) Mandrik (1996), who instead refers to it as the habitual heuristic has also discussed this. These theories will be used to examine whether this type of heuristic is used, when searching for product information online, or not.
3. Methodology
The previous chapter brought up an overview of literature and theories of relevance to the purpose and research questions of this thesis. In this chapter, the research process will be described. The methodology used in the thesis and the considerations that have influenced the choices of methods and approaches will be presented. A discussion of the purpose, research method, research strategy, data collection method, sample selection, data analysis, and quality standards will follow.

3.1 Research Purpose
According to Eriksson and Wiedersheim-Paul (1997), the purpose with research is to state what is to be accomplished by conducting research and how the results of the research can be used. The research purpose can be divided into different groups. According to Yin (1989), research can be classified as being exploratory, descriptive or explanatory study.

*Exploratory research* is appropriate when a problem is difficult to structure and when there is uncertainty regarding what models to use and what characteristics and relations that is important. The research is designed to allow an investigator to just “look around” with the respect to some phenomenon, with the aim being to develop suggestive ideas. (Reynolds, 1971) The purpose is to gather as much information as possible concerning a specific problem. Exploratory research is often used when a problem is not well known, or the available knowledge is not absolute. (Patel & Tebelius, 1987) According to Yin (1989), the research should be as flexible as possible and conducted in a way that provides guidance for procedures to be engaged during the next stage.

The objective of *descriptive research* is to provide a description of various phenomenon connected to individuals, situations or events that occur (Patel & Tebelius, 1987). Describing also involves a choice of perspective, aspects, level, terms, and concepts, as well as to observe, register, systematize, classify, and interpret (Eriksson & Wiedersheim-Paul, 1997). The purpose might be to develop empirical generalizations. Once such generalizations begin to appear, they are worth explaining, which leads to theory development (Reynolds, 1971). Moreover, descriptive research is often used when a problem is well structured and there is no intention to investigate cause/effect relations (Eriksson & Wiedersheim-Paul, 1999).

The objective with an *explanatory research* is to analyze cause-effect relationships, explaining what causes produce what effects (Eriksson & Wiedersheim-Paul, 1997 and Yin, 1989). The researcher also tries to identify factors that together cause a certain phenomenon (Lundahl & Skärvad, 1992). In addition, the goal is to develop a precise theory that can be used to explain the empirical generalizations that evolved from the second stage (Reynolds, 1971). Based on this, the researcher formulates hypotheses that are tested empirically (Patel & Tebelius, 1987).

According to Reynolds (1971), it is not necessary to choose one of these purposes over of the others. Instead he suggests a compound procedure, which divides the research into three different stages. The aim is to provide the researcher with a cycle of theory construction, theory testing, and finally a theory reformulation. (Ibid.)

The research purpose and research questions of this thesis indicate that this study is initially exploratory, when aiming to formulate and specify problems, which provides us, the researchers, with both a course for the task at issue as well as an insight into existing theories within the subject. The study then becomes somewhat descriptive as data is collected and
analyzed. Finally, the study becomes slightly explanatory, as the research questions of this study will be answered in the final chapter.

3.2 Research Approach
Holme and Solvang (1995) discuss two different methodological approaches within social science: qualitative and quantitative. Which approach to use is determined by the characteristics of the gathered information. The most important difference between the two approaches is how numbers and statistics are used. (Ibid.) The research approach is usually either qualitative or quantitative (Patel & Tebelius, 1987).

Qualitative methods focus on acquiring a profound knowledge and understanding of the studied object or objects. The possibility of making generalizations in a qualitative study is limited, since the number of objects are limited and studied more in depth. (Holme & Solvang, 1995) In addition, qualitative research is the search for knowledge that is supposed to investigate, interpret, and understand the phenomena by the means of an inside perspective (Patel & Tebelius, 1987). Subjectivity by the researcher(s) is usually an issue when conducting qualitative research. (Holme & Solvang, 1995) Therefore, methods for reducing this subjectivity will be discussed in the validity and reliability section later in this chapter.

Quantitative research is characterized by a formalized and structured method (Ibid.). The research tries to explain phenomena with numbers to obtain results, thereby basing the conclusions on data that can be quantified (Lundahl & Skärvd, 1992). There is a relatively high degree of control from the researcher, who in turn is objective in the study. The researcher defines what conditions are of interest to the study based on the research questions. Objectivity is necessary in order to conduct formalized analyses and make comparisons and generalizations. Finally, generalizations can be made since many objects are studied, although relatively little information is collected from each object. (Holme & Solvang, 1995)

The qualitative approach was found to be most suitable for the purpose of this thesis, as the purpose is to gain a better understanding of consumer information search behavior in electronic environments. Hence, the aim is not to make any generalizations, but instead establish a closer contact with the studied objects, which intends to provide us, the researchers, with a deeper understanding of the participants’ behaviors, attitudes, and perceptions. Finally, as the intention with this thesis is to explore and describe, and find as complete and detailed information as possible, the qualitative approach is the most suitable method.

3.3 Research Strategy
The selection of research strategy depends upon three distinct conditions. These conditions include the type of research questions asked, the extent of control an investigator has over actual behavioral events, and the degree of focus on contemporary events compared to behavioral events. Furthermore, there are five primary strategies in the field of social sciences: experiment, survey, archival analysis, history, and case study. (Yin, 1989) The relation of each condition to the five different research strategies can be found in Table 3.1 on next page.
Table 3.1 Relevant Situations for Different Research Strategies

<table>
<thead>
<tr>
<th>Research Strategy</th>
<th>Form of Research Question</th>
<th>Requires Control Over Behavioral Systems</th>
<th>Focus on Contemporary Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td>How, why</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Survey</td>
<td>Who, what where, how many, how much</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Archival Analysis</td>
<td>Who, what, where, how many, how much</td>
<td>No</td>
<td>Yes/no</td>
</tr>
<tr>
<td>History</td>
<td>How, why</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Case Study</td>
<td>How, why</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Source: Adapted from Yin, 1989, p. 17.

Which strategy to choose can be determined based on the formulation of the research questions. The most common types of research questions are formulated as who, what, where, how, and why questions. When how- or why- questions are used, the researcher can benefit by using case studies, experiments, or historical studies. (Yin, 1994)

As the research questions in this study is based on how questions, the investigators have no control over the actual behavioral events, and the focus of the study is on the “how” of a contemporary event, the choice stands between conducting a survey or a case study (or studies). However, as it has been stated that this research will have a qualitative approach, a survey is not appropriate because of its quantitative character. Therefore, the strategy chosen for this study is the case study.

More specifically, a case study is an empirical research that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used. This definition not only helps us understand case studies, but also distinguishes them from the other research strategies. (Yin, 1989) Case studies are further suitable when research is focused on few objects, which are being looked at in many respects (Eriksson & Wiedersheim-Paul, 1997). According to Yin (1994), there is a distinction between single and multiple case study design. Evidence from multiple case studies is more convincing, and the overall study is therefore regarded as more robust. Multiple case studies increase the validity of the research and create an opportunity to compare the cases. (Ibid.)

In order to address the research questions of this study, three case studies will be conducted. By conducting case studies through three focus groups, the results can be compared and the study seen as more compelling.

3.4 Data Collection Method

Yin (1994) states, “a major strength of case study data collection is the opportunity to use many different sources of evidence” (p. 91). This use of multiple sources of evidence is called triangulation, which means that the researcher has the opportunity to obtain multiple measures of the same phenomenon. By using multiple measures of the same phenomenon, the validity of any scientific study increases. Findings or conclusions resulting from a case study is likely to be more convincing and accurate if based on several different sources of information. No
one of the different sources has a complete advantage over the others. The different sources are highly complementary; hence, as many sources as possible should be used. (Ibid.)

According to Yin (1994), data for case studies can be collected via six different sources: documentation, archival records, interviews, direct observations, participant observations, and physical artifacts. See Table 3.2 below.

Table 3.2: Six Sources of Evidence: Strengths and Weaknesses

<table>
<thead>
<tr>
<th>Source of Evidence</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation</td>
<td>- Stable: can be reviewed repeatedly</td>
<td>- Retrievability: can be low</td>
</tr>
<tr>
<td></td>
<td>- Unobtrusive: not created as a result of the case</td>
<td>- Biased selectivity: if collection is incomplete.</td>
</tr>
<tr>
<td></td>
<td>- Exact: contains exact names, references, and details of an event.</td>
<td>- Reporting bias: reflects bias of author (unknown).</td>
</tr>
<tr>
<td></td>
<td>- Broad coverage: long span of time, many events, and many settings.</td>
<td>- Access: may be deliberately blocked.</td>
</tr>
<tr>
<td>Archival Record</td>
<td>- (same as the above for documentation).</td>
<td>- (same as the above for documentation).</td>
</tr>
<tr>
<td></td>
<td>- Precise and quantitative</td>
<td>- Accessibility due to private reasons.</td>
</tr>
<tr>
<td>Interview</td>
<td>- Targeted: focuses directly on case study topic.</td>
<td>- Bias due to poorly constructed questionnaires.</td>
</tr>
<tr>
<td></td>
<td>- Insightful: provides perceived causal inferences.</td>
<td>- Response bias.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Inaccuracies due to poor recall.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Reflexivity: interviewee gives what interviewer wants to hear.</td>
</tr>
<tr>
<td>Direct Observation</td>
<td>- Reality: covers events in real time.</td>
<td>- Time consuming.</td>
</tr>
<tr>
<td></td>
<td>- Contextual: covers context of event.</td>
<td>- Selectivity: unless broad coverage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Reflexivity: event may proceed differently because it is being observed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cost: hours needed by human observers.</td>
</tr>
<tr>
<td>Participant Observation</td>
<td>- (same as for direct observation).</td>
<td>- (same as for direct observation).</td>
</tr>
<tr>
<td></td>
<td>- Insightful into interpersonal behavior and motives.</td>
<td>- Bias due to investigator’s manipulation of events.</td>
</tr>
<tr>
<td>Physical Artifacts</td>
<td>- Insightful into cultural features.</td>
<td>- Selectivity.</td>
</tr>
<tr>
<td></td>
<td>- Insightful into technical operations.</td>
<td>- Availability.</td>
</tr>
</tbody>
</table>

Source: Adapted from Yin, 1994, p. 80.

As archival records are characterized as precise and quantitative, they are not suitable for the qualitative approach of this study. Moreover, physical artifacts are described as insightful when it comes to cultural features and technical operations, but since this study is concerned with attitudinal questions, this type of evidence is not appropriate.

The data collection methods that will be used for this study are interviews, documentation, and observations. According to Patel & Davidson (1994), two types of data can be collected, primary and secondary data. Primary data is recognized as data that is gathered for a specific research in response to a particular problem through, for example, interviews, questionnaires, or observations. Secondary data, however, may already have been collected for another purpose. More specifically, secondary data information can be obtained through various kinds of documents; for example, research reports, annual reports, books, and articles. (Eriksson & Wiedersheim-Paul, 1999)
The interview is chosen as the major primary data collection method because of its strength in focusing directly on the topic of the case study. Some potential disadvantages with an interview are that it can be biased on poorly constructed questions, there is a risk for reflexivity, i.e. that the interviewee tells the interviewer only what he/she wants to hear. (Yin, 1994) Yin (1994) describes the following three different types of interviews: open-ended, focused, and structured.

The most commonly used interview method is the open-ended, where the researcher asks the respondent unstructured questions, thus allowing the interview to be more of a discussion. The respondents can be asked for facts as well as their own personal opinion. When a focused interview takes place, the respondent is interviewed during a brief period of time. Still, the character of the interview is open, and it may be conducted by a conversation between the respondent and the researcher. However, the researcher is most probably following a questionnaire. The purpose with a focused interview could be to confirm certain facts that are already known to the researcher. The third form of interview, survey, is more of a combination of an interview and a survey. The interview is structured and based on predetermined questions. (Ibid.)

The type of interview that will be used for this study is the focused interview. An interview guide will be used, which enables discussions within a limited number of issues related to the conceptual framework presented in the previous chapter. Consequently, the focused interview can be used to verify or dismiss the theories of this study. A focused interview can generally be conducted by telephone or in person. While telephone interviews are less costly and time consuming, which makes them useful when contacting distant respondents, personal interviews can be longer and include more complex questions. The personal contact during a face-to-face interview also enables a better feedback from the respondent(s). One type of focused interview is the focus group. (Lundahl & Skärvad, 1992)

Focus groups are group interviews in which a moderator guides the interview while a small group discusses the topics that the interviewer raises (Morgan & Kreuger, 1998). Recommendations on optimal focus group size vary from 5 to 12 per session and the length of the session is usually about 1-2 hours (Morse, 1994, Morgan, 1997). The rule of thumb regarding size is that the group must be small enough for everyone to have an opportunity to share insights and yet large enough to provide diversity of perceptions (Krueger, 1994).

More specifically, focus groups provide insight into beliefs and attitudes that underlie behavior of the participants. Data regarding perceptions and opinions are enriched through this type of group interaction because individual participation can be enhanced in a group setting. Moreover, in selected research settings, the data collected by using a focus group can be more informative than the data collected by other methods, since it also includes nonverbal behavior. Underlying this technique is the rationale that, with proper guidance from the focus group leader, group members can describe rich details of complex experiences and the reasoning behind their actions, beliefs, perceptions, and attitudes. The impact of the group setting can enhance the quality of the data obtained. (Morse, 1994) Consequently, people who are similar to each other compose focus groups. The nature of this homogeneity is determined by the purpose of the study and is a basis for recruitment (Krueger, 1994). The homogeneity allows for a more relaxed and flowing conversation among the participants, and it facilitates analyses that examine differences between groups (Morgan, 1997) If conducted properly, focus groups can capture the meaningful experiences and ideas of the participants on a given topic relative to the research study (Threlfall, 1999).
According to Krueger (1994), much of the success of the focus group interview depends on good questions asked to the right respondents, but another essential aspect is a skilful moderator. The moderator should be neutral and non-judgmental, which should be obvious to the participants (Ibid.). Hence, establishing trust and an accepting atmosphere is crucial at the introduction of the session. Moreover, knowing when and how to probe (seeking further information, i.e., more details based on personal experience, lack of agreement between verbal and nonverbal communications, and inconsistent contributions can be the bases for probing) is the most important aspect of guiding the session. (Morse, 1994) Alternatively, a moderator team can run the focus group. In such a scenario, the principal moderator is concerned with facilitating the discussion, keeping conversation flowing, and taking a few notes, while the assistant moderator takes comprehensive notes, operates the recording equipment, and deals with environmental factors (such as noise distractions) and latecomers. (Mitchell & Branigan, 2000) In addition, providing the participants of the focus group with refreshments during discussion is something that has been recommended by authors with experience form focus groups, e.g. Mitchell and Branigan (2000) and Krueger (1994).

As the aim with this study is to look at the research topic from a consumer perspective, thereby gaining insight to consumers’ attitudes, perceptions, and opinions within the subject area, conducting focus group interviews is found to be the most suitable alternative for collecting primary data for this research. This is since it will allow perceptions and opinions of the participants to be studied and if conducted properly the individual participation may be enhanced. Focus group sessions will also allow us, the researchers, to get an insight into the experiences and ideas of the participants. In addition, the aim is to be neutral non-judgmental moderators, who interact to facilitate discussion. More specifically, three focus group sessions will be conducted for this research. The participants in the focus groups will be offered refreshments as has been recommended by previous focus group researchers. In addition, a short questionnaire will be given out at the beginning of the focus group. This is intended to provide general information about the participants in the group and at the same time collect some data before the participants has had a chance to talk to each other about the topics. This can be considered as a form of primary documentation (Yin, 1994).

According to Lundahl and Skärkvad (1992), observations are usually conducted when studying different behavior or role issues. Both direct observations and participant observations will be used to some extent as a tool for collecting primary data. More specifically, the interaction and behavior of focus group participants will be observed and noted by the assistant moderator, which can be referred to as direct observation. As the principal moderator will guide the group discussion this observation can be regarded as participant observation. These observations will then serve as a tool to gain insight into interpersonal behavior and motives of the participants. In addition, after each focus group, both moderators will view the videotape of the session, which can be seen as a second form of direct observation.

The secondary data for this study is based on documentation in the form of academic articles and previous studies on the research topic. As the area is rather new, Gattiker, Perlusz, and Bohmann (2000), have suggested that an interdisciplinary approach should be used when investigating various phenomena on the Web. Consequently, most of the literature reviewed can be classified as traditional, since it deals with behavioral aspects in the physical environment. Hence, the documentation gathered can be regarded as secondary data, since someone else collected it for a different purpose.
3.5 Sample Selection
When conducting research, it is often impossible, impractical, or too expensive to collect data from all the potential units of analysis included in the research problem. Hence, a smaller number of units, a sample, are often chosen to represent the relevant attributes of the whole set of units, the population. Because the samples are not perfectly representative of the population from which they are drawn, the researcher cannot be certain that the conclusions will generalize the entire population. (Graziano & Raulin, 1997)

Students are widely used for various kinds of academic research based on their accessibility and relative homogeneity regarding, for example, age, economic situation, and lifestyle (Smith, Haugvedt, Jadrich & Anton, 1995). In addition, Morgan (1997) has noted that the participants must feel able to talk to each other, and wide gaps in social background or lifestyle can defeat this requirement, as the aim is homogeneity in background and not in attitudes. Furthermore, Iivonen and White (2001) have stated that it is important to include culture into research on how people search for information on the Internet. They argued that “as the Internet becomes more dispersed across the world as a new, complex channel of communication, it is essential to begin to study the nature of the cultural and national differences that relate to its use (Ibid., p. 466).

For this study, students at Luleå University of Technology will be used as respondents as well as a few post-graduate students. More specifically, the sampling of the students will be conducted among the students in the course “Internet marketing” given at the University during the fall semester of 2002. Limitations in time is a contributing factor when choosing respondents, as students are easier to access than engaging people from outside would have been. As these students are familiar with many of the concepts regarding the Internet, they are regarded as suitable participants. In addition, the post-graduate students are also regular Internet users and will therefore, be included in this study.

In each of the groups, some of the participants may be acquainted to each other, and some not. According to Morgan (1997), the mixture of strangers and acquaintances in a focus group is not negative, since the sampling decisions should rely on the basic criterion of whether a particular group can comfortably discuss the topic in ways that are useful to the researcher(s). For this study, the sampling decision will be based on the cultural background of the participants. This is possible since the Internet Marketing course also contains students from a variety of different countries and continents. By choosing participants from different cultures, this study will briefly touch upon what has been suggested by Iivonen and White (2001) about research on information search online. More specifically, a group from Europe, one from North America, and one from Asia, will make up the cases of this study.

The number of participants in each focus group will be based on Morse (1994) and Morgan’s (1997) recommendations, described previously. The aim is therefore to have between 5 and 12 participants in each group.

3.6 Data Analysis
According to Yin (1989), every case study should begin with a general analytic strategy. These general analytical strategies, with regards to the cases studied, provide the researcher with a system by which priorities can be set for what needs to be analyzed and why. (Ibid.) In qualitative data analysis, Miles and Huberman (1994) state that the focus is on data in the form of words; in this case, words that emanate from the focus group interviews. These words
require processing, which is a form of analysis. The data analysis is consistent of three synchronized activity flows:

- **Data reduction** is made in order to make the data sharp, focused, sorted, discarded and organized so that the researcher(s) can draw and verify conclusions. A within-case analysis is often used at this phase, which involves comparing the collected data with the theories used. (Ibid.)

- **Data display** is the second major activity, in which the researcher takes the reduced data and displays it in an organized and compressed way in order to make it easier to draw conclusions. (Miles & Huberman, 1994) Yin (1994) states that this phase is useful when multiple cases are being studied. Multiple cases can be compared in a cross-case analysis, where data in one case is compared to data in another case (Miles & Huberman, 1994).

- **Conclusion drawing and verification** is the final analytical activity in qualitative research. It is here the researcher(s) begins to decide what things mean by noting regularities, patterns, explanations, possible configurations, causal flows, and propositions. (Ibid.)

The analysis of this thesis will follow these three steps. First, in order to reduce the data, within-case analysis will be done by comparing the empirical findings with the conceptualized literature, for each session separately. Secondly, cross-case analysis will be conducted in order to compare the different groups as well as display similarities and differences. Finally, based on the within-case and cross-case analysis, conclusions will be drawn.

### 3.7 Validity and Reliability

Regardless of data collection method, the information has to be critically examined in order to determine its validity and reliability. Validity and reliability are the most commonly used criteria used for evaluating the quality or credibility of research. Validity refers to the ability of the chosen instrument to measure what it is intended to measure. Validity is the most important requirement on a measuring instrument. Reliability involves a measuring instrument’s ability to give reliable and stable results, if the same techniques were to be used repeatedly. (Eriksson & Wiedersheim-Paul, 1999) The role of reliability is to minimize the errors and biases of a study (Yin, 1994). According to Yin (1994), four specific tests can be conducted in order to judge the quality of empirical research:

- **Construct validity**: Establishing correct operational measures for the concepts being studied.
- **Internal validity**: Establishing causal relationships whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships.
- **External validity**: Establishing the domain to which a study’s findings can be generalized.
- **Reliability**: Demonstrating that the operations of a study can be repeated with the same results. (Ibid.)

According to Yin (1994), these tests and thereby the quality of the study can be enhanced through the use of a number of tactics when doing case study research. The tactics are presented in table 3.3 on next page.
Table 3.3 Case Study Tactics for Four Design Tests

<table>
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<th>Tests</th>
<th>Case Study Tactics</th>
<th>Phase of Research in Which Tactics Occurs</th>
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| **Construct Validity** | - Use of multiple sources of evidence.  
                          | - Establish chain of evidence.                     | - Data collection.                          
                          | - Have key informants review draft case study report.|                                         |
| **Internal Validity** | - Do pattern matching.                                  | - Data analysis.                            |
                          | - Do explanation building.                             |                                         |
                          | - Do time-series analysis.                             |                                         |
| **External Validity** | - Use replication logic in multiple-case studies.       | - Research design.                          |
| **Reliability**       | - Use case study protocol.                             | - Data collection.                          |
                          | - Develop case study database.                        |                                         |

*Source:* Adapted from Yin, 1994, p. 33.

*Construct validity* means to establish operational measures that are correct for the concepts being studied. As shown in table 3.1 there are three different tactics for increasing construct validity: using multiple sources of evidence, establishing a chain of evidence, and having key informants review a draft of the case study report. (Ibid.) First, triangulation will be used to gain multiple sources of evidence. These sources will be: focus group interviews, direct and participant observations, and documentation. Secondly, the interview guide will viewed by other people before the sessions, in order to make sure that it was understandable. Thirdly, the sessions will be videotaped, recorded on cassettes, and notes will be taken, all to enhance the construct validity, as the risk of missing important information will be minimized.

Issues concerning the construct validity may also arise when using focus group interviews. Krueger (1994) has cautioned as to whether focus group sessions really show the true perceptions of the participants, or if the results are falsely developed by the interaction of group participants. However, it is complex to estimate the scope of this type of problem, as it is very difficult to know if, or how, participants (intentionally or unintentionally) influence each other. A skillful moderator can minimize this influence. (Ibid.) Since the experience of the researchers in moderating focus groups is very limited, literature on this activity will be reviewed in order to reduce the effect of this weakness. According to Mitchell and Branigan (2000), the interview guide for focus groups can be either in the form of a *questioning route* or a *topic guide*. The questioning route or the interview guide (see Appendix 1) is a series of structured questions, which are written in complete sentences to offer greater control over variation and thereby allowing for a more efficient analysis. The topic guide consists of key words or phrases that serve as a reminder or cue to the moderator. (Ibid.) The questioning route will be used because of the limited experience of the moderators. The reason for why the topic guide will not be used is that it would have increased the risk of lowered validity.

*Internal validity* only concerns causal or explanatory studies, in which an investigator is trying to determine whether one event lead to another. Using pattern matching during the analysis strengthened the internal validity of this thesis. More specifically, the empirically based pattern for each case was compared with the pattern predicted in the conceptualized literature (Yin, 1994). As the internal validity is mostly of concern for causal and explanatory studies, it is mostly applicable at the end of the study where conclusions are drawn.
The external validity deals with the issue of knowing whether the findings from a case study can be generalized outside the immediate case study. This type of validity has often been a problem when conducting case studies. Therefore, Yin (1994) has suggested a tactic for increasing the external validity of a case study, namely by testing theory through replications of the findings in other, but similar, surroundings. If this kind of replication has been made, it might be possible to make generalizations on the findings to a larger number of similar cases. (Ibid.) In order to increase the external validity of this study, the tactic suggested by Yin (1994) will be followed, that is, to use replication logic in multiple case studies. For this study, conducting three case studies will test the relevant theories. However, it might still be difficult to draw any generalizations based on the findings of this study.

According to Yin (1994), reliability demonstrates that the operations of a study, such as the data collection procedures, can be repeated with the same results. The objective is to make sure that if another investigator followed the same procedures as the first investigator and used the same case study objects, the same conclusions would be made. The aim with reliability is to minimize errors in a study as well as the biases. Two things can increase reliability: the use of a case study protocol and the development of a case study database. (Ibid.) Regarding reliability of observations, Yin (1994) says that to increase the reliability a common procedure is to have more than a single observer making an observation, whether it is of the formal or the casual variety. Hence, when resources permit, a case study investigation should use multiple observers.

To increase the reliability of this thesis, the researchers will attempt to avoid leading and subjective questions, which will be facilitated by the use of the more structured interview guide. In addition, the same interview guide will be used during all three sessions. However, when interpreting the answers, the reliability might be affected negatively by some personal biases. In order to develop a case study database, the videotapes and notes from the sessions will be saved. However, it is difficult to establish reliability to any larger extent, as the case studies deal with the perceptions of people on an intangible and varying subject. The reliability may be further influenced by the fact that peoples’ perceptions vary over time, which makes it difficult for another researcher to achieve the same results even if the same sample were to be used. Finally, both researchers will be observing the videotape and this might affect the reliability of this study positively.
4. Empirical Data

In the previous chapter the methodology for this thesis was presented. In this chapter the collected empirical data will be presented. The data collection was conducted through three focus group sessions of which each session represents one case. The empirical data will be presented in the order it was obtained, beginning with the European group, followed by the North American and the Asian group. Each case will follow the order presented in the Conceptual Frame of Reference. Furthermore, the empirical data will be presented using what Krueger (1994) refers to as “descriptive summary.” That is, each topic for discussion begins with a summary, followed by descriptive quotes. The quotes are intended to help the reader understand the way in which respondents brought up issues during the discussion. (Ibid.)

4.1 Case One: A European Perspective

The first case study was conducted through a focus group interview containing ten European students at Luleå University of Technology (LTU). The participants came from two different countries; Sweden and Germany. The focus group interview was conducted in a conference room in the library at LTU Monday, December 9th at 13.00. Before starting the session, the group was informed about the purpose of the study and how the focus group session would be conducted. They were also offered a drink and something to eat. Demographically, the participants were students, with different educational backgrounds, in the Internet Marketing course offered at the University. The gender distribution of the participants was three women and seven men and with ages varying between 23 and 32, 60 percent of which, were under 25 years of age.

All of the respondents, except two, used the Internet several times a day. The two others used it only once a day or a couple of times per week respectively. The Internet experience varied slightly within the group. Six of the respondents had begun to use the Internet over five years ago, two had begun to use it three to four years ago, and the last two had begun using it two to three years ago. In addition, most of the respondents in the group were habitual browsers. They were curious and wanted to stay updated and continuously searched for different product information even though they were not actually ready to make a purchase. However, one of the respondents said that she would only search for product information when she was in the process of buying something.

4.1.1 Factors Influencing Product Search Activity Online

Regarding the issue of what factors influence the search activity conducted online, the participants began by mentioning that the first factor that had an influence was if they knew what brand they were buying or not. The general idea of the group was that they conducted more search if they only knew the product and not the brand name they were searching for. This is due to the fact that they had to find out all the possible brands available before starting to compare them. The group also agreed that when they knew the brand, their search activity was lower. Some of the thoughts regarding this issue are quoted below.

“If you know the brand of the product you are about to purchase, you do not search as much, but instead go directly to the producer’s Web site by typing the address in the browser. “ He continues, “If you want a DVD-player you go directly to Sony or Panasonic or whatever. But if you do not know the brand name, you search more and you go to a search engine to find out more about the product and the brands available.”

Another factor brought up by the participants was that the type of product and the money involved had an influence on their search activity. The participants reached a consensus rather
quickly on this issue. That is, high-value, more complex and less frequently purchased products required extensive information search online. On the other hand, low-value and somewhat frequently purchased products required a fairly low search effort. The reason for this, was according to the participants, that more complex and expensive products were easier to find information about than low-value and more basic products. According to the respondents, the only information available online for low-value and basic products was usually price, which in fact was also what they wanted in those cases. In addition, they added that it was more important to find information for more high-value and complex products since they would require more money and had more features. A personal example that one of the respondents shared was that he spent 6 months searching for information on the Internet about free-diving gear before he bought it.

“It was a big investment for me and a purchase of high importance. It was something that I did not have much information on before. As a first stage in my searching process, I wanted to compare the information and alternatives available in order to get the best for the money. However, if I were to buy a DVD-movie or something I do not spend as much time looking for other places, since my main criterion is price and I know where to go for the information.”

The respondents also added that some types of products were hardly ever searched for online. These were, for example, food, clothes, toothpaste and more. According to the respondents the information they wanted for these types of products were easier to find in the physical store and therefore, they did not want to waste time by searching for it online. In addition, for some products, like clothes, it was more important to receive information by touching and feeling, therefore, it was easier to do in the real world.

When discussing whether the number of alternative information sources found online had any influence on the respondents search activity, they stated that it did not. However, they would not search the entire Web to find what they were searching for, but instead stop when they felt fairly satisfied. In addition, they could regularly find what they were looking for because they felt that they had developed fairly good online searching skills and had found a few search tools that they stayed with and used frequently.

The respondents all agreed with another with the fact that there was inaccurate information posed here and there on the Web. This in turn influenced them to search more. More specifically, they added that in order to reduce the possibility of being exposed to inaccurate information they had to search for more information sources and compare the information found. If all the sources presented the same information, the respondents felt like they could trust the information. Some of the respondents also felt like they could trust Web sites that they recognized from the real world. For example, a physical store with an online version. In addition, most of the respondents said that they would trust the information from a shopping channel or shopping bot. However, if they were to find out that the information had been wrong they would not use that search tool again. The participants continued by discussing that even newspapers in the real world could have inaccurate information sometimes, but that would not mean that they would switch newspaper. Instead, accuracy online was perceived to be of greater importance than in the real world and the respondents would only tolerate it to a limited degree.

“If I get a piece of inaccurate information, it pretty much ruins it for me and I will find another channel.”

One respondent also brought up another factor regarding the accuracy of information that the other participants agreed upon. That is, she felt that the issue was more of a problem when
searching for information and buying a product in the real world than online. This is because she felt that sales personnel in the physical store were trying to influence her, but also because it was harder to compare the information with other sources in the physical store. The other respondents added that online they could search in their own time and decide for themselves what they believed was right and wrong, without any influence from a salesperson. One of the respondents gave a real life example. He had recently decided to purchase a high value product, namely a digital camera. He started the process by searching for product information in the real world by visiting several stores. However, when he entered into the stores he did not get any attention from the sales personnel, the product was not on display and he even received information that he later found was inaccurate. After that he went online for product information. Online he got more facts and could even view a demo where he could see the camera from different angles. He ended by stating that he actually received more feedback and accurate information online than in the real world, and could even purchase the camera at a lower price.

“On the Internet it is safer since you can make comparisons and take your time. You have freedom on the Internet compared to the real world.”

“On the Internet you can actually find some ‘independent’ information that has tested the product. This is something that you cannot get in a real world store.”

The respondents in the group all agreed with each other that perceived product importance influenced their search activity. They added that the more important they perceived the product to be, the more they searched. This is since they wanted to be able to have a lot of information before they decided to purchase the product, otherwise the judgment might be risky. More importantly, they did not want to be disappointed afterwards.

Regarding the topic of “risk” online, the participants had strong opinions. They felt that the most significant risk online was the risk of receiving inaccurate information. This risk, in turn, influenced their search behavior by making them search more in order to verify the information found, as mentioned before. This risk was also more apparent when they were searching for more expensive products and when the possible threat of a large financial loss was involved. Furthermore, the respondents felt that the risk was higher when it came to new products because there was less information available than with products that had existed for years.

“The risk online is something that you always have in the back of your mind when you search the Internet.”

All of the respondents, except one, said that their search behavior on the Internet had changed over time as they have gained more experience using the Internet. The respondents that acknowledge a change of search behavior felt that they searched more now than when they first started using the Internet. One of their reasons for this increase in search was that they felt like it was easier to find information today, because they knew how to use the search tools. In addition, they felt that there was more information available to search through today, as well as, an improvement of the search tools. Most of the respondents felt that the reasons why they did not search as much in the beginning was that they found it frustrating not to be able to find what they wanted and, therefore, they gave up. A few of the respondents also felt like they had been more likely to rely on brand names, when searching for product information, in the beginning of their Internet experience, since they did not know how to search. However, this had become less as they became more efficient at searching. The one respondent, who did not search more today than in the beginning, instead felt that his search activity had not changed, but had remained constant.
Empirical Data

Despite the fact that the respondents felt like they search more today, they added that their Internet experience has made it easier for them to narrow down their search. This is because they have now learned how to use the search tools.

Regarding the issue of search cost, none of the participants felt that cost, in terms of paying for the Internet, influenced the search activity online. The cost was fairly low for all of the respondents, and they could even use it for free in some places like the University. In addition, they stated that the Internet was used for other purposes than just searching which decreased the cost associated with searching.

As far as time cost goes, all of the respondents agreed that they searched more on the Internet than in the real world. The reason for this was that it was easier and less time consuming to search online when compared to the real world, since they could conduct the search at home and on their own time. The respondents added that in the real world they would physically have to walk between stores to receive the information, and this could take days.

“I can search more on the Internet than in the real world, since it takes less time to find the information.”

Finally, the participants stated that the Internet has made them search more for product information compared to in the real world stores. This is due to the fact that they prefer not bothering store personnel in order to receive information about the product. In addition, they stated that the Internet has increased their search behavior in general. However, most of the respondents would only use the Internet to find product information and then go out and by it in a physical store, except in those cases when the price was considerably lower, then the respondents could consider purchasing it online. Hardly any of the respondents felt secure enough to leave out their credit card number online, instead they preferred invoices. The respondents also added that they wanted to make sure the store actually existed before considering making a purchase online. They believed it was too easy to set up a fake and would not trust information from a Website they were not familiar with. One respondent added that he would trust the Website if it had security features and was solid.

4.1.2 Preferred Search Tools for Retrieving Product Information Online

Regarding the respondents’ search tool preferences, the search tools mostly used, varied between the respondents. To begin with, the most preferred search tool for finding product information online in the group was the browser. This is since they perceived it to be an easy and efficient way of getting what they wanted. More specifically, the browser was mostly used when they knew where to find the information they were looking for, for example, the brand or company name were typed in followed by “.come,” “.se” or the URL address of an already know site.

“It depends on what you are looking for. If you know the company you are looking for, you just use the browser. You just use the company name and add “.com” or “.se” after, to find the Web site. I think this is an easy and fast way.”

Search engines were considered the second most preferred search tool in the group. Search engines were perceived to be an easy way of finding all kinds of information on the Internet, and especially when they had very little knowledge of the product sought for. In these cases, search engines were perceived to be the only search tool available that could handle this. In addition, the respondents felt that this tool was not limited to only certain brands, but instead searched the entire Web. When discussing the mostly used search engines online, Google was frequently brought up by most of the respondents. Other than that, one woman used Spray and
another man used Altavista. The man who used Altavista purely did it out of habit, as it was the first search tool he was introduced to, even though he actually thought that Google was better. Yet another respondent said that his choice of search tool depended on which was most popular at the moment, because that is where he thought he could find the most accurate information.

When discussing advanced search functions, provided by search engines, all of the respondents said that they hardly ever use them. They felt that they were too difficult to use and especially when searching for product information, because they felt that these functions were more for academic searches. In addition, the respondents said that the regular functions in the search tools worked well enough.

“Advanced search sounds too complicated for me to understand and I would not even try and use it.”

The third most used search tool in the group was Web directories. Web directories were considered a good way of finding product information online since they were sorted into categories. More specifically, the respondents felt that the relevancy of the information posed here was higher since it had been divided into categories by humans and not computers. In addition, the respondents felt that Web directories sometimes gave them a head start on their search since unnecessary information had already been sorted out.

The fourth most used search tool in the group was shopping bots. These were only used by four of the respondents. They perceived it to be a good tool for finding and comparing product information from several different manufacturers in one spot. They were also considered more reliable as they were independent Web sites and not owned by one specific brand. The respondents who did not use these kinds of tools had not found any really good ones, but were eager to try some of the ones mentioned by the others.

Some of the respondents also used a search tool, referred to as, review forums. At these Web sites they could receive product reviews and opinions of other consumers. However, review forums were mostly used when the product searched for was more complex and/or more expensive. This type of search tool was ranked fifth in the group.

“I can get information about the products’ positive and negative sides from other consumers, which can be very valuable.”

Hardly any of the respondents used newsgroups for obtaining information. This is because they felt it was too time consuming and old fashioned. In addition, they explained that they were unsure of the validity of the information received because they could not know if the person responding really knew what he/she was talking about. Only one respondent used newsgroups, for some types of product information, but not frequently. As a matter of fact, the only thing that he really used them for was when he needed specific information that could not be found anywhere else on the Web or in the real world, for example old product information and manuals. Out of the search tools mentioned, newsgroups were the least used in the group.

None of the respondents had conducted any research on what search tools existed, but instead almost solely relied on word-of-mouth. The respondents said that word-of-mouth had strong influence when it came to the selection of search tools and made them at least try the search tool once. If they did not like it, they went back to using their old one, whereas if they found
the new one to be better, they switched. In addition, the only thing that could really influence them into changing their present search tool was word-of-mouth.

“I simply cannot be asked to put energy into finding alternative search tools. That is why I rely on my friends’ recommendations.”

All of the respondents explained that it was difficult to determine their most preferred search tool because they used several. This is because their search tool preference depended on what type of information they were looking for. More specifically they had different ways of searching depending on different situations. When asked to explain how they searched for product information online, in these situations, the participants came up with a number of different alternatives. These alternatives were mainly grouped into two categories; search process based on previous knowledge about the product, or search process based on the product type. Within the first category, search process based on previous product knowledge, two alternatives were mentioned. First, if the brand name was familiar, the participants stated that they usually went to a specific Web site by typing the URL address in the address bar of the browser. Secondly, if they only knew the product and not the brand name, most of the respondents used search engines in order to find different brands within this product category. However, the respondents added that for the most part they had some idea about what brands they were interested in, before they went online to search.

Within the second category, search process based on type of product, all the participants agreed with one another that their search behavior was affected by the type of product they were searching for. Two examples were brought up. First, if the respondents were about to search information about a fairly uncomplicated or low-value product, for example, a CD or a DVD, the respondents directly went to Pricerunner.com or CDON.com. This is since they did not need too much product information, but just wanted to compare prices. Secondly, if the product they were searching information about was of the more infrequent kind or of a higher value, most respondents started their search process by using a search engine. A couple of the respondents also went to review forum sites where they could find information about the specific product. This is since they could compare the positive and negative sides of the product, which had already been discovered by other buyers.

“I use review forums when the product I want information about is more complex or has more features.”

4.1.3 Problems Associated with Product Information Search Online

When the topic: problems occurring when searching online, was brought up, the respondents all had something to contribute. To begin with, the respondents felt that it sometimes was hard for them to specify their initial search query, and especially when they had little knowledge about the product they were searching for. In addition, the respondents had problems specifying their query in a way that the search tool understood. One of the respondents, who was not very experienced with using the Internet for information search (in her own opinion), had several problems when searching. For example, because she was a novice she had only recently figured out how to use “+” in her search query. She perceived the searching process with many search tools to be difficult, and especially when she did not know exactly what she was looking for, since she could not specify her query.

Another problem in the search process, mentioned by the participants, had to do with the issue of words with double meaning. That is, a word that has more than one meaning and when searched for in a search tool, receives results for each of these meanings. The respondents felt
that this made it difficult to receive information that matched what they were actually searching for.

“For example, when I type in a search query in Swedish, and that word also has a meaning in another language for example, English, I receive many results that are irrelevant to my search.”

Other problems mentioned by the respondents had to do with the result list brought back from the search tool and the relevancy of the search results. All of the respondents felt that search tools somewhat frequently brought back unrelated results, and that this made their search more time consuming since they had to scan all the results in order to find the relevant ones. As a matter of fact, the participants estimated that they, only 80 percent of the time, received what they were actually searching for. Furthermore, one of the respondents had a specific complaint on search engines. He said that when he searched for product information, he frequently received academic articles and unnecessary information in his result lists. In addition, problems with links that were too old and, in some cases nonexistent, were perceived as an irritating and unnecessary occurrence.

Regarding the amount of information brought back by the search tools, all of the respondents agreed with one another that it was a significant problem. Many of them did not have the time to go through all of the results, but instead gave up before being completely satisfied. As a matter of fact, half of the respondents were only willing to investigate three to ten links in order to find what they were looking for, whereas the other half were willing to investigate 11 to 20 links before they gave up.

The respondents felt that the design of the search tools sometimes could be a problem, and agreed with each other rather quickly on how the design should be. In further detail, the respondents wanted the search interfaces to be kept clean and simple. They were very specific that they did not want to be put in a position where they had to “search for the search button” or the search query box. Neither did they want any popups nor expanding blinking banners. The respondents also added that they simply would not use search tools that had too many interferences because it was a waste of time. They brought up Google as an example of how a search engine should be designed: clean with no advertising. Other problems that were brought up by the participants had to do with the frequent problem of non-functioning search links displaying errors. Furthermore, one of the respondents found the advanced search function on many search engines to have a very complicated design. The other respondents supported her arguments and also found it difficult to use advanced search functions, due to a too complex design. Most of the participants hardly ever used the advanced search functions due to this problem.

“The search tools are easy to a certain limit and then they are just too complicated to even try to understand.”

The respondents also found problems in the accuracy of information available online. They said that it was too easy to set up a fake Web site on the Internet. Therefore, they would not trust information from a Web site that did not appear serious or had some kind of security mark. According to the respondents, in order for them to trust the information on a Web site it had to be clear and should not deliberately hide important texts in very small fonts. More specifically, the problem had to do with the fact that they felt like they could not trust everything they read, which made the search process more difficult and time consuming for them.
Finally, searching on company Web sites that had their own search engines was perceived by some of the respondents to be problematic. They though that it was frustrating to use these tools because they hardly ever worked, and the information brought back, was for the most part, not what they were looking for.

4.1.4 Shortcuts Utilized when Searching for Product Information Online
Regarding shortcuts online, all of the respondents said that they adopted measures in order to reduce the amount of information online. There was simply too much out there for them to investigate it all.

Many of the respondents used shortcuts when the product was not of high-value to them. One of the tools used as a shortcut was one-stop information providers like, for example, Pricerunner.com and MrJet, since they could get product information and price in one place with very limited search effort. These Web sites were usually never searched for as they were already in the minds of the respondents. In addition, they had used them before and knew that they worked well. When searching for low-value products the criteria most often used by the respondents was price. However, these kinds of shortcuts were not used that much when the product they searched information for was of higher value to them. This is given that they then wanted deeper and more thorough information than what could be provided by one-stop shopping Web sites. In those cases the respondents searched more on their own among different types of Web sites, for example, review forums.

“A ‘real’ shortcut for me is when I can go to one place and find all the products there ready to be compared, without me having to search the entire Web.”

Brands were an obvious shortcut that the respondents used. More specifically when they had a brand preference, they went directly to that brand’s Web site instead of searching for alternatives. In addition, they searched less when well-known brands were involved because they felt that the risk was lower. This is because the brand name withheld a certain degree of security for the respondents. Heavily promoted Web sites also influenced the respondents, who took a shortcut directly to that Web site instead of searching for alternatives.

“Brands are still relevant because they stand for the lowest amount of quality and security.”

“I go directly to CDON.com since they have been doing a lot of advertisement claiming that they offer the best prices.”

4.2 Case Two: A North American Perspective
The second case study was conducted through a focus group interview containing six North American participants. Three of the participants were students from the Internet Marketing course offered at Luleå University of Technology, the other three had graduated from a University in the U.S. approximately a year ago. The post-graduate students were all living in Luleå at the time and were frequent Internet users. The gender distribution of the participants was one woman and five men and the ages varied from 20 to 29 with 90 percent under 25 years of age. All the participants of this group were from the United States of America. The focus group was conducted in a conference room in the Luleå University of Technology library on Monday, December 16th at 08.00, and was carried out in the same manner as the previous case.

Four out of the six participants had begun using the Internet over five years ago and two had been using it three to four years. The Internet usage in the group was frequent with five participants using it several times per day and only one using it once per day. Furthermore, all the respondents had purchased something online and were all comfortable using the Internet.
Finally, the respondents felt that they continuously browsed through product information online to see if something new came up or just to stay updated.

4.2.1 Factors Influencing Product Search Activity Online
When discussing the factors that influence the search activities online, several different factors were brought up. First, the type of product that the participants were looking for information on influenced them in their search activity online. The participants explained that some products required more search effort before they were actually purchased and they were for the most part, products that were technical or had a lot of features to them. More simple products like CDs did not need a lot of search effort. The reason for this was that they did not need as much information about products with fewer features as they did with more complex products. Secondly, the participants were influenced by how expensive the product they were searching for information about was. More expensive products were searched for to a greater extent than less expensive products. This is due to the fact that there was more of a risk involved with more expensive purchases. Thirdly, the importance of the product to the searcher influenced the amount of search undertaken. The participants claimed that they searched more when the product was of high importance to them. Finally, the participants mentioned that the amount of search depended on if they were getting ready to buy a product at the moment or if they were just browsing for product information for a possible future purchase.

“I search more if I am going to spend $ 80 on a product than if I am about to spend $ 10.”

The respondents also added that their search activity online was also influenced by what type of product they were looking for information about. There were products that they did not search for at all online, like clothes and food, and others that they almost always searched for online, like more technical products. The respondents explained that it was just time consuming to search for products like hygiene products since it was more easily done in the physical stores.

According to the respondents, the amount of information sources available on the Internet was not a factor that influenced them in their search activities. However, they also stated that they felt like they were good enough at searching online and, therefore, could narrow down their search to find what they were looking for. In addition, many of the respondents already knew where to go to find the information they needed.

When discussing the accuracy of information found online, the respondents agreed with one another that there was inaccurate information online, but that it did not affect them. They felt like they fairly easily could determine the reliability of the information provided online themselves by just looking at the Web site. However, the participants also added that the problem with inaccurate information online affected them to some extent if the information they were looking for, was for a more high-value or technical product. That is, if the products were of a greater importance to the respondents they searched more in order to decrease the likeliness of inaccurate information. They also added that if the information came from a known company, they were not going to question the accuracy of the information since it could be found offline too.

“You have to validate the accuracy of the information yourself.”

“If you go to a Web site that looks crappy and is poorly done, then you automatically realize that the information is invalid and you cross it out and go to the next place.”
In general the respondents felt that the information available online was fairly accurate and sometimes even more accurate and sufficient than what could be found in the real world. An example was brought up by one of the respondents where he compared online searching to offline searching.

“The other day I went to Power to ask about a cell-phone, but I could not get that much information from their seller, and he even gave me some inaccurate information. So I went online instead and found out a lot more information about the phone. Sometimes physical stores do not have sales personnel capable of answering your questions and then it is almost easier to go online and find out for yourself.”

Regarding the issue of “risk” online the respondents did not perceive it to be an influencing factor in their search activity online. The only risk that they saw was that of inaccurate information posted online, and in this case it was especially associated with more high-value products. However, despite the fact that the respondents said that they did not feel like the risk online affected them that much, they had a few ways to reduce the risk of inaccurate information online. To begin with, the participants compared different information sources to see if they all said the same and could then determine the accuracy of the information. Secondly, they checked the information with what they felt were more unbiased Web sites for example, different review forums.

When discussing the respondents search behavior over time, everyone except one said that they searched more today than when they first started using the Internet. The respondents who searched more now had some explanations for this increase in search. First, they believed that they had gotten better at searching on the Internet and therefore searched more. They felt like they knew better how to search and for that reason could find more information today. Secondly, they added that since technology had gotten much better now it was easier and faster to search, which made them search more. The one respondent that felt that he searched less now, than in the beginning, did so because he felt like he knew where to go. He did not spend time trying to find his way. In other words, he was more efficient at searching online today and therefore searched less. However, he felt that he had had an increase in search earlier on, but that it had shifted and was now becoming less. He explained his searching curve to have the shape of a hill and not a straight up-going line like the others.

“I think I search wiser now than in the beginning.”

None of the respondents thought that financial cost had any direct influence on their search activity online. They mentioned that most Internet providers today have a fixed fee and did not charge by the minute and therefore it did not matter how much they used it.

Regarding time cost, the respondents felt that the time cost was minimal when using the Internet to search for information. This is since it was faster and more convenient to sit at home and research instead of physically visiting several stores in the real world. In addition, the respondents added that the Internet was never closed, and therefore, enabled them to search on their own time. As a matter of fact, the respondents felt that they searched more today, in general, because of the Internet.

“I think it is almost cheaper, in terms of time, on the Internet compared to the real world, because in the real world you can be spending half of a day going through five different stores, while on the Internet you can visit five stores within half of an hour.”

Finally, the respondents added that the Internet itself had made them search for more product information today before they made a purchase. However, the Internet had not yet become a
“store” to them; they still made most of their purchases in the real world because it was perceived safer. On the other hand, their Internet purchases were increasing as they became more and more comfortable with it. Most of the participants in the group had purchased something with a credit card on the Internet.

4.2.2 Preferred Search Tools for Retrieving Product Information Online

When discussing the respondents preferred search tools online search engines were ranked number one. The respondents used search engines since they perceived them to be an easy way of receiving a lot of information at once from all kinds of Web sites, and because the results brought back were presented in a well-defined manner. In addition, they felt that this type of search tool was the only one capable of retrieving initial information online when they had little knowledge of the information sought. This is given that the respondents could form any kind of search query and almost always receive some result. All of the respondents, except one, used Google as their preferred search engine. One of the respondents had even added the Google search box in the tool bar of her browser in order to make it easily available. The participant who did not use Google still used search engines, but instead the ones that were provided by his browser, Internet Explorer. He always started with the default one, MSN, and then went on to the next ones. He used these search engines because he could still have the result list on the left-hand side of the screen, throughout his entire search, without having to go back to it all the time.

“Search engines are good because I can get a link directly to the store or item that I am looking for.”

Regarding the issue of the advanced search functions provided by search engines, only one of the respondents said that he used it. He felt that it was a good way of narrowing his search down in certain cases. The other respondents did not feel that they needed these kinds of functions when searching for product information since they usually did not provide them with any better information than the regular search tool functions did.

The second choice by respondents was the browser. The browser was mostly used by typing in the URL address of a certain Web site or by trying a brand name followed by, for example, a “.com.” It was considered a fast and easy way of searching when the respondents knew where they could find the information they wanted.

All respondents except one also used review forums in their product information search online. They felt like it provided them with additional information that seemed less biased than many other sources. The one respondent that did not use reviews did not feel like he needed that kind of information. Review forums were rated third among the mostly used search tools.

“I use review forums because you are not physically able to check out the product yourself. This way others that have bought the product can give you some hints about its performance, good or bad.”

Furthermore, four of the respondents also frequently used Web sites that enabled comparisons of products from different manufacturers. This was considered to be the fourth most used search tool among the respondents. Most of the time these Web sites were already in the respondents’ memory since they had learned of their existence during previous searches. They liked these kinds of Web sites since they did not have to search for all the products themselves, but could find them in one place. The respondents, who did not use these types of
search tools frequently, stated that they had not found any really good Web sites for the types of products that they had been looking for information about.

“They are good for looking for a bunch of types of products, comparing the characteristics, and then looking for the best/cheapest/most efficient way to obtain that product.”

The search tool that was used the least in the group was Web directories. It was only used by two of the respondents and then as a last resort. They felt that they sometimes could be good because the information provided was usually relevant, but that they for the most part did not have the specific product information they were searching for. The other respondents did not use Web directories at all because they perceive them to be too general.

“I only look at them, as a last resort...boredom.”

None of the respondents used newsgroup searching as a tool for finding product information online. They felt that they were slow and did not give them any good and relevant information. Therefore they perceived it to be a waste of time. In addition, they said that if they were looking for product information, they did not want to spend time asking questions and waiting for answers. They wanted to find out the information themselves right away.

None of the respondents actively searched for new search tools, but instead found out about them through word-of-mouth. According to the respondents, the reason why word-of-mouth was so influential was that there was too much out on the Internet for them to know it all. Therefore, the respondents simply used the familiar search tools until someone else told them to try another one.

The respondents also added that their preferred search tool depended on the situation. They brought up two different ways of searching, which depended upon whether or not they knew the brand they were searching for. First, if they knew the brand name, they would go to that brand’s Web site directly by typing the address in the browser. Only if they could not find what they were looking for would they use a search engine. This is because they felt that most brands had really well-done websites where they could find, at least some initial information. Secondly, if they only knew the product that they were interested in, all of the respondents usually went to a search engine to find out information about different brands.

“If you are looking for just a general product, a hairdryer or razor for example, you just want to see all the products. Then I go to a search engine and all the results come up. After that I can pick the brand I want.”

The participants continued the discussion by adding that the type of product they were searching information about also affected their search process. First, if the product was of low-value and/or less complex, the respondents would go to some shopping channel or shopping bot that they knew had the product. This is since these types of products were bought more frequently and, therefore, the respondents knew where to go. In addition, they felt that they did not need that much information about these types of products, mostly just pricing information. Secondly, the respondents usually used search engines when it came to more technical products, unless they had already found a good Web site containing that information in a previous search. As a matter of fact, in the case of more high-value/technical products all but two of the respondents already had a few Web sites that they preferred going to for product information. These Web sites provided product information and comparison, in a one-stop shopping environment and were referred to as shopping channels or shop bots. The respondents who did not utilize these types of Web sites instead went directly to search engines to receive more information.
“If you are searching for a book or a movie or something, then you go to Amazon.com or bestbuy.com or a store like Target that has everything. You do not search around”
“I have already searched and found Web sites that provide me with the information I want. If it is a more technical and complex product I usually always go directly to “cnet.com.”

4.2.3 Problems Associated with Product Information Search Online
Regarding the issue of problems that might occur when searching online, the respondents began by saying that there were not many problems that really bothered them. To begin with, on the topic of search queries, the respondents did not feel that they had any problems in specifying what they were searching for in a way that would be understood by the search tool. The only time when this could be an issue was when they fully did not understand what information they wanted. However, in that case they just had to start by being very general in their search query, and then could eventually be more specific as they received more knowledge about the product they were searching for. Hence, no problem at all.

None of the respondents had problems with search words that had more than one meaning. They were sure that it might have happened to them sometimes, but it was nothing that bothered them. Instead, they understood why it could happen and just accepted it.

One problem that was brought up by the respondents was the fact that when they were looking for something very specific on the Internet, it could be hard to find. In further detail, the respondents felt that when they tried to find these types of information, they usually received results that were not relevant to the specific topic. This problem was perceived to be one of the most significant associated with information search online.

Regarding the issue of the relevancy of search results brought back. All the respondents recognized this problem, but most of them did not feel that it really bothered them. They just cancelled out what was not relevant. However, some problems were perceived somewhat influential. To begin with, the respondents felt it to be a problem when keywords were split up in the result list or when a Web site was found in the result list, which randomly contained the keyword(s), but had no relevancy to the search. Secondly, the respondents were bothered by links brought back by the search tools that were too old or nonfunctional. They felt that the search tool should have excluded these links as soon as they were out of date. Despite this, the respondents felt that search tools, for the most part, were pretty good at retrieving information and that 95 percent of the time they could find what they were looking for. In addition, they accepted the problem of irrelevant results because they knew that if they would have to do the physical search themselves it would take a lot longer.

None of the respondents saw a problem in the amount of results brought back by the search engine. They just searched the first few pages and if they did not find what they wanted they just did a new search. All of the respondents felt that their Internet experience had made them good at scanning through the results, and that they would search as many as 21 to 50 links to find what they were looking for. This was done fairly quickly and, therefore, the amount of information was not considered to be a problem. In addition, the respondents added that they frequently found what they were looking for on the first page of results.

Regarding the design of the search tools, the participants did not consider it to be too problematic. However, they thought that some search tools were too cluttered and had too much advertising. To overcome this problem, they simply did not use these search tools. The respondents wanted the search tool to be simple and easy to use. In addition, they wanted the
Empirical Data

links brought up in the result list to contain the title of the linked site and not some scrambled text. This is considering that unclear links increased the time spent searching because they could not be ruled out just by looking at the link. All of the participants in the focus group thought that the search engine Google fulfilled this necessity. “There is too much text, games and other crap on some search engines like Yahoo!, and that is annoying. I do not use them because of that.”

The respondents saw a problem with search engines that were located within specific Web sites because they did not think that they worked very well. This problem influenced the respondents not to use them anymore. They almost preferred searching through the site themselves rather than relying on these tools. “For me it is easier to find what I am looking for by clicking on the buttons instead of actually using the search engine.”

4.2.4 Shortcuts Utilized when Searching for Product Information Online

The respondents in the focus group all felt that they used some shortcuts because they were not able to process all the information available on the Internet. Instead, they had to minimize the search effort by relying on certain Web sites or types of information. This was especially true for low-value and/or more basic products, where most of the respondents already had a predetermined way of going about finding the information they wanted. They simply went to a Web site or shopping channel that they knew had the product information they wanted, which for the most part was price.

Shopbots that summarized lists of products and product information were also perceived to be shortcuts by the respondents. The respondents felt that these types of search tools simplified the search process for them by reducing the time carried out searching. In addition, the respondents added that these Web sites also made it easier for them to compare products, and receive a more complete picture, than they would have had if they searched by themselves. “I could not possibly do all of the work myself, it would have taken me months.”

Brands were perceived to be, to some extent, a shortcut used when searching online by the respondents. More specifically, they felt that well-known brands held certain established characteristics that made them familiar and “safer.” Therefore, when searching for information about a familiar brand the respondents did not engage in as much searching as they would have, if they did not know the brand. “Brands are a shortcut because if you know that a particular brand is the best, you do not have to search as much.”

4.3 Case Three: A Asian Perspective

The third case study consisted of eight students from Asia taking the Internet Marketing course offered at Luleå University of Technology. More specifically, the participants had different educational backgrounds and came from Bangladesh, China, Korea, Pakistan, and Vietnam. The gender distribution among the participants of this group was four women and four men and the ages varied between 21 and 33, with 50 percent under 25 years of age. The focus group was carried out on Monday, December 16th at 13.00 in a conference room at the library University. It was conducted in the same manner as the two previous cases.

The respondents all used the Internet several times per day. However, the Internet experience varied between the participants. Six of the respondents had been using the Internet for more than three years while two had only been using it for about two years. Most of them only
searched for product information online when they actually needed it, and they would not search information for later use.

**4.3.1 Factors Influencing Product Search Activity Online**

Regarding the issue of the factors influencing the respondents search activity online, the first factor brought up was the type of product they were searching for. All of the participants agreed with each other that more technical and more expensive products were searched for to a greater extent than less technical and less expensive products. This was because they felt that the risk was higher when it came to more complex and expensive products, but also because there was more information to be found online when it came to these types of products. Less technical and inexpensive products were searched for to a very limited extent online. This was due to the fact that most of the respondents preferred to actually go to the physical store where they could more easily access product information. As a matter of fact, the only basic type of product that they searched for online were books. In addition, products with very few or no direct technological features, for example, food and make up were not searched for at all on the Internet. The respondents did not require that much information for these products and especially not from the Internet, as they would not purchase them online. The respondents claimed that the information for those types of products was more easily obtained in the physical store.

When discussing the amount of alternative information sources, the respondents did not feel that it influenced their search activity online. However, the respondents later expressed that they did not have the resources required to search all the information out there, but instead only searched until they became satisfied. In addition, the respondents usually used the same familiar search tools when searching for product information online.

All of the respondents perceived the problem of inaccurate information when searching online to be an influencing factor. They felt that the information found online had many flaws and could not always be trusted. This made them search more, since they had to compare the information from several Web sites and sources. The respondents would even compare online information with information from physical stores, and in certain cases they would call a store to verify the accuracy of the information. An additional way of reducing the problem of inaccurate information online was to rely on word-of-mouth. The respondents often trusted a friends advice pertaining to certain Web sites.

“The law in China is not very good, and therefore, it is easy for companies to do ‘cheating things’ online. In the future, I think the legislation will be better and then it will be safer.”

Another factor affecting search activity online, brought up by the respondents, was the importance of the product information searched for. More specifically, the more important the respondents perceived the product to be, the more effort they put on searching online. The reason for this was that the respondents wanted to make sure that they had made the right choice before purchasing and, therefore, searched for more information.

“When I was at home in my country I decided to attend an MBA program abroad and I used the Internet to search for MBA schools all over the world for two months, several hours a day. Before this I had never used the Internet that much. It took a lot of time, but it was worth it because it was important to me. Finally, I found this school.”

Regarding the issue of perceived risk online, all of the respondents felt that it was an influencing factor on their search activity. The most important perceived risk, when searching on the Internet had to do with inaccurate information. In order to reduce this risk, the
Empirical Data

participants searched more extensively for information, as was stated when discussing information accuracy. The respondents also said that one reason why they perceived there to be a risk associated with the product information received online, was that they mostly searched for high-value and more expensive products. In that case, they would feel a greater loss if something was wrong than with low-value and less complex products. In addition, the respondents also said they were more likely to rely on familiar brands when they felt a need to reduce risk.

When discussing the respondents search behavior over time, everyone except one person, felt they searched more today than when they first started using the Internet. This was due to the fact that they had better knowledge of how to search now. The one respondent, who did not feel like his search activity had increased, instead felt like it had stayed the same over time. He searched as much now as he did in the beginning. The more experienced users (in their opinion) felt like their search behavior had gotten more focused over time, but that they still spent the same amount of time, or even more, searching because they knew that the information was out there. The two more inexperienced users (in their opinion), felt that searching on the Internet was still challenging and sometimes very frustrating.

“I am searching more and more today then I did before because now I know where to look.”

Regarding the financial and time cost involved with searching for information online the respondents had different opinions. To begin with, the influence of financial cost varied between the participants and countries. Half of the respondents said that the financial cost associated with having the Internet was very high in their countries. Therefore, their Internet usage was very limited and their search activity was in turn reduced. The high cost was due to the fact that most Internet providers were linked via satellite and not via fiber optic cable, which made it extremely expensive. The other respondents did not have very high Internet charges and as a result was not limited in the same way. Their search activity was not influenced by the financial cost.

“Since the cost of the Internet-fee is very high in my country, the cost does not compensate for the information I get.”

The time cost on the other hand, was perceived by everyone to be an influencing factor on his or her search activity online. The respondents felt that the time cost mostly had to do with technology. More specifically, they said the slow connections in their home countries made it very time consuming to search online and, therefore, reduced their search activity. The respondents that had fast connections had lower time costs and said they probably searched more than those with slow connections. In addition, the respondents brought up that the speed of the connections even varied within countries.

“I did not care that much about searching for product information on the Internet in my home country, but when I came here I found it really easy because the speed of uploading a page is very quick. In my home country you have to wait maybe 5 or 10 minutes to get an image of a camera or a laptop for instance. Therefore, it is better to just forget it!”

Finally, the group mentioned that they probably searched more today, because of the Internet. Some of the respondents also added that as they had started using the Internet a “whole new world” had opened, and it just had to be investigated. However, the Internet was still merely an information source and most of the respondents would not consider buying anything through it. They felt it was too unsafe and that they could easily be deceived. Only one girl had purchased something online and that was books. This is since she felt that the price was considerably lower than in the physical store. She still believed that the Internet was unsafe and had therefore tried to overcome the trouble of leaving her credit card number online by
Empirical Data

getting an extra card that was only for Internet purchases. She simply transferred the amount of money that she needed for the purchase to the “Internet card” and would therefore lower the risk of becoming a victim of Internet fraud.

4.3.2 The Preferred Search Tools for Retrieving Product Information Online

Regarding the respondents’ search tool preferences, search engines were the most used method by all the respondents when searching for product information online. The respondents said that they liked search engines because they made it easier to search and because they generally found what they were looking for. Furthermore, the range of items and brands that could be found by using search engines appealed to the respondents. When discussing the respondents’ preferred search engine, six of them brought up Google as their favorite, whereas two of them preferred Yahoo!. The Google users liked it because it was simple, had no advertising, and found what they were searching for. The Yahoo! users said that most of the time they found what they were searching for; however, they were not really satisfied with the results since they felt that the results were not very focused. Their reason for using Yahoo! was merely out of habit. Furthermore, the majority of the respondents found the advanced search functions included in some search engines to be difficult to understand and would therefore, not use it. However, a minority of the respondents used advanced search in order to get more structure in their search. They did not have any problems using it, but thought it was a good means for narrowing down their search.

The browser was generally considered their second most used search tool. This is because they thought that the browser was an efficient and easy search tool to use when they knew what they were looking for. It is a simple manner of typing in a known Web address in the address bar.

“It is a fast way of getting what you want, and where you want. I use it a lot.”

The third most used search tool, when searching for product information online, was the Web directory. The respondents felt that this was a good way of starting their search. Most of the information presented was relevant to the category searched for. In addition, they felt it was an easy way of narrowing down their search and quickly gaining general knowledge.

“If you are using a Web directory in the beginning of your search you have some validation, otherwise the site would not have been included.”

Half of the respondents used newsgroups for product information and used them fairly frequently. They felt as though it was a good way of receiving feedback from others in cases where their friends and other sources could not answer their questions. In addition, they could straight out ask what they wanted to know and did not have to try to find the information themselves. Newsgroups were ranked as the fourth most used search tool.

“Newsgroups are good because I can discuss with someone else and get his or her opinion on a product.”

All of the respondents said that they sometimes used Web sites that contain information about many different products and brands, and this tool was ranked in usage. These Web sites were usually local to their area and the respondents mostly used them when they were not sure of what brand they were interested in. Moreover, they felt that these sites were a good place to compare products.

Three of the respondents also used review forums online where they could read other consumers opinions on products. They found this type of search tool useful since it was more
Empirical Data

unbiased than the information provided by companies online and offline. The respondents who did not use this type of Web site stated that they did not know that they existed. This last tool was ranked sixth because it was not utilized by many of the respondents at all.
“I search Web sites where others can write their opinions. There I can find out minor or major problems with products, and this is more useful than going to a physical store, where I only get to know about the good things and not the bad.”

According to the respondents, all of them had heard about their present search tools through friends and not through their own research. The respondents felt that word-of-mouth was a reliable and very influential source of information because their friends had experience and could therefore be trusted. The respondents also relied on their friends since there were too many search tools available to know about them all. In addition, they would not switch unless another tool was recommended.

None of the respondents used only one search tool at a time, but instead switched depending on what they were searching for. More specifically, when discussing how the respondents searched for different product information online they mentioned a few different methods.

First, if the respondents knew the brand name they were interested in, all of them would try to find the Web site first by using a search engine. Because by visiting the company Web site they could find some information to begin with.

Secondly, if the respondents only knew the product they were looking for, and not the brand name, none of them would use search engines to begin with. They felt that without a brand name search engines brought back too many results. Instead the respondents would try to find out about the brands available through different kinds of sources. Many of them would go to a Web site that they knew provided information on several brands, others would ask their friends what brand(s) they preferred and then go to a search engine. This, they felt, would enable them to form an opinion about the product and what brands to consider before searching for more in-depth information through search engines.
“If you do not know the brand and you go to Google you will have thousands of results.”

The respondents rarely searched for low-value products online. However, the few that did, usually searched for books and knew what Web site or shopping channel to go to, and they simply went there by typing in the URL address. They felt they did not need that much information, and the information they did need, they could find easily at the local store.

The respondents all said that with more expensive products brand name was vary important. Therefore, the first step for them was to form a brand preference in the same manner as they did when they only knew the product. After that, they would try to find product information on the company Web site for the brand by using a search engine.

4.3.3 Problems Associated with Product Information Search Online

When discussing problems that might occur when searching online, the participants brought up several issues that bothered them. To begin with, many of the respondents found it difficult to specify their search query in the search tools. They said that it was difficult to specify what they wanted, which gave them too many results. However, two of the respondents had no problems with formulating search query, since they had the experience required to do it.
“I have a lot of problems with how to put the right key word in the search tool to reveal the right results. No one has taught me how to do this and I have a hard time figuring it out my self”
Another problem the respondents experienced online, was that the words they searched for often had more than one meaning. According to the participants it was a frequent problem that they typed in a word that ended up having several meanings, which in turn made the search tool bring back many results referring to all of these meanings.

“It often happens that I type in a word, for example a product brand name, that has a meaning in another language and I get thousands of hits for both those meanings. This makes it hard to search on the Internet sometimes.”

Most of the respondents said that yet another problem was that they received unrelated links rather frequently. They perceived this to be a problem as it slowed down their search and made it time consuming and inefficient. More specifically, the respondents estimated that their search results were relevant approximately 80 percent of the time. One respondent also found it to be a problem that companies could pay search engines and Web directories to be on top of the result list. The rest of the respondents agreed, but also added that Google did not do this, which was one of the reasons why they used it. Finally, one of the respondents brought up the problem with links that could not be opened and links that are too old. The rest of the respondents agreed that this was a very frustrating and frequent phenomenon. More specifically, they felt that these links should have been excluded and that the search tool creators should be obligated to keep better track of the Web sites.

Many of the respondents agreed with one another that the amount of results brought back by the search tools was another problem. They felt that there usually were too many results brought back in the result list and that they did not have the time or energy to go through them all. However, they also came to a consensus that too many results were better than too few. Even though they felt that too many results were better than too few, most of the respondents were only willing to investigate three to ten links in order to find what they were looking for. The respondents also felt that this issue was aggravated by Web sites, which purposely include and index a popular word on their site just to be on the result list for many popular key words. This is often the case even though the Web site has nothing to do with the topic.

Regarding the graphical design of search tools, the respondents had some preferences on how the search interfaces should be. They all preferred Web sites that were simple, easy to understand, and without banners and advertisements. More specifically, they saw problems both with tools that were difficult to understand how to use, and banners and advertisements, which were distracting. However, in order to overcome these problems the respondents simply did not use them because there were other tools that had better designs. Six of the respondents also brought up the fact that many advanced search functions had too complex designs. The instructions and examples were too difficult to understand and this in turn influenced the respondents not to use them. Two respondents, on the other hand, did not perceive this as a problem and actually thought that the design of these functions were satisfactory.

Finally, the respondents found search engines included in specific Web sites to be non-functional for the most part and seldom used them. They actually found it easier just to find the information they wanted by navigating through the site than using the search function.

“I can find what I want faster by searching myself or by using the site map.”

**4.3.4 Shortcuts Utilized when Searching for Product Information Online**

When discussing shortcuts online, the respondents all said that they used some type of shortcut when searching online, which enabled them to minimize the amount of information
they had to process. They explained that there was just too much information on the Internet to search it all.

The more experienced respondents relied on a few Web sites providing a lot of different product information in one place, which allowed them to compare products’ prices and functions. They considered these Web sites as shortcuts since they usually did not use any other search tools and because they could find all the information they wanted right there. The inexperienced users did not use these kinds of Web sites in their home countries, but instead they relied more on referrals from their friends to specific Web sites. However, once outside of their home country they had been exposed to more one-stop information providing Web sites, and were beginning to use them. They stated that they had definitely become a shortcut because they did not have that much knowledge of where else to go for product information. Therefore, these Web sites reduced their information search, for the more inexperienced users, by providing it all in one place.

Another shortcut brought up by the respondents was the use of brands. According to the participants brands played an important role for them, and then especially when it came to more expensive and hi-tech products. This is since they felt that the risk was higher for these types of products, but that a well-known brand name could reduce this risk somewhat. The respondents added, that they did not search for as much information if they had a brand preference compared to when they did not. This is since; they felt like they could trust the brand and because they already had some opinions about it already in their mind.

However, because most of the participants did not search for less expensive and uncomplicated products online they did not use any shortcuts to find information about these products. On the other hand, the respondents that did search for these types of products, had preferred Web sites or shopping channels that they went to for price information and comparisons. They felt that this could be considered a shortcut because they did not search for any other information, but just knew that these shopping channels would have the information they were looking for.
5. Analysis

In the previous chapter, the empirical data collected for this study was presented. In this chapter the empirical data will be analyzed in the order of the research questions. To begin with, a within-case analysis will be conducted for each of the case studies, by comparing the empirical data in chapter four with the conceptual framework presented in chapter two. This is done in order to reduce the data. Thereafter, the data for each research question will be displayed through a cross-case analysis, where the three case studies are compared with each other to find similarities and differences.

5.1 Factors Influencing Product Search Activity Online

The first research question aims to describe the factors that might influence consumers while searching online.

5.1.1 Within-Case Analysis

Case One: A European Perspective

The first influencing factor brought up by the group had to do with whether or not they knew the brand name or not, for the product, when looking for information online. More specifically, they searched more when they did not have any brand preferences. This factor was not brought up in any of the literature reviewed for this research question.

Regarding research question one, the first theory reviewed under the title market environment, had to do with difficulty of the choice task. According to Peter and Donnelly Jr. (2000) and Solomon et al. (1999), consumers traditionally utilize three types of decision-making depending on how complex or expensive the product is; routine-, limited-, and extensive decision-making. In the gathered empirical data products requiring a more routine decision-making were not searched for online by the respondents. Therefore, the traditional theory is not in accordance with the empirical data. However, when the products were of low-value and/or relatively uncomplicated, the respondents searched for them to a limited extent online. This is in accordance with the limited decision-making as stated by the authors. Finally, when the products were of higher value and/or were more complex, the respondents conducted extensive search online. This is also in accordance with what the authors had stated regarding extensive decision-making. When comparing the data from the group, with the product classification by Peter and Donnelly (2000), shopping goods were found to be searched for to a lesser extent by the participants. On the other hand, specialty goods were searched for to a great extent, while convenience goods were not searched for at all online.

The second theory reviewed dealt with number of alternatives. According to Jarvis (1998) and Pereria (1999), consumers do not consider all alternative information sources online due to the amount of information available. This can be somewhat correlated to what was found in the empirical data. That is, even though the respondents claimed that the amount of information available online did not influence them they still did not search the entire Web. Instead they relied on a few different search tools with which they were comfortable with and only searched until they felt satisfied.

The third theory that was reviewed dealt with complexity of the alternatives. According to Ward and Lee (2000), consumers require more information online from different sources, since there is inaccurate information to be found on the Internet today. This is in accordance with what was stated by the respondents. Moreover, when comparing the empirical data with Jarvis’ (1998) study it can be seen that the two correlate. More specifically, the respondents...
did feel that the information available on the Web sometimes could be inaccurate, but that sales people in the physical stores were even more inaccurate.

Under *individual differences* the theory reviewed was *motivational factors* in consumer behavior by Beatty and Smith (1987) and Solomon et al. (1999), who said that consumers engaged in extensive search, during high involvement conditions and vice versa. This correlates with what the respondents expressed during the focus group. When searching for product information that was perceived to be more important they search more.

For *situational variables* the main theory reviewed was that of risk perception. According to Mitra et al. (1999) and Taylor (1998), risk and search effort is positively related, which is in accordance with what any of the respondents felt. They searched more for different sources on the Internet, since they felt there was a risk involved when searching online. The respondents perceived the most influential risk associated with the Internet to be that of information accuracy.

The modified traditional theories\(^4\) reviewed on *knowledge and experience* mainly dealt with the relationship between Internet experience and amount of search. Nine out of the ten respondents felt that their information search had increased over time, which is in accordance with the *modified positive relationship* based on Fiske et al. (1994). The *modified negative relationship* (Fiske et al., 1994) and the *modified inverted-U relationship* (Solomon et al., 1999 and Antonides & Van Raaij, 1998) were not in accordance with what any of the respondents stated. Instead one respondent expressed that his search activity had stayed constant over time, which was not mentioned in any of the theories reviewed. Furthermore, the respondents felt that their search had become more efficient as their Internet experience increased, which can be correlated to Solomon et al. (1999).

The respondents also stated that they had a tendency of relying on brands in their initial information seeking. As they became more experienced they relied less on brands as they were more efficient at searching and knew how to use the search tools. This is in accordance with what Solomon et al. (1999) stated about selective search for the more knowledgeable in the inverted-U relationship.

The last theories reviewed for research question one dealt with *cost of search*. All of the respondents stated that *financial cost* associated with searching on the Internet had no influence on their search activity. The Internet did not require any significant investments from their part. Hence, the theory on financial cost by Antonides and Van Raaij (1998) and Smith (2000) is not relevant in this case since financial cost had no affect on the respondents’ search activity. *Time cost*, on the other hand, was something that influenced the respondents positively in their information search online. This is in accordance with Jiang (2002) and Beatty and Smith (1987), who stated that reduction in time cost increase search activity. Moreover, Jiang (2002) state that time is the only cost factor that remains significant for search in electronic marketplaces, which is also what the empirical data indicates.

Finally, the respondents brought up something that was not dealt with in the studied literature. That is, they merely used the Internet as an information source and hardly ever bought anything online, due to a perceived low security.

\(^4\) See Frame of Reference p. 26-27 in Chapter Two
Case Two: A North American Perspective

The first two factors brought up by the respondents could be found under market environment and more specifically in the traditional theory, difficulty of the choice task, by Peter and Donnelly Jr. (2000) and Solomon et al. (1999). In further detail, the participants claimed that they searched extensively for more technical products, but also products associated with a higher expense. This is in accordance with what the authors have stated about extensive decision-making. In addition, limited decision-making in the theory also correlated with what the respondents stated. However, the respondents did not search for products online that required routine decision-making. Hence, this traditional theory was not applicable here. Furthermore, by comparing the data with the theory by Peter and Donnelly Jr. (2000) it can be found that specialty goods were searched for to a greater extent than shopping goods online. Hence, the traditional theory is applicable for this case. Convenience goods, on the other hand, were not searched for at all.

The respondents did not feel like the number of alternatives available online influenced their search activity. However, they also added that they did not review all the information available online, but instead narrowed down their search by relying on old habits and their Internet experience. Hence, the respondents were actually affected by the quantity of information sources available even though they did not recognize it. This is somewhat applicable with what was stated by Jarvis (1998) and Pereria (1999).

Even though the respondents claimed that the issue of inaccurate information did not affect their search activity online, they tried to reduce the likeliness of being exposed to it by examining several sources. Therefore, their behavior is in accordance with the theory complexity of the alternatives and with Ward and Lee (2000), who state that consumers will require more information sources online due to the problem of inaccurate information. The respondents also added that the Web could sometimes be even more accurate than sales people in the physical stores, which correlates with what Jarvis (1998) found in his study.

As stated by the respondents in the group, they searched more if the product they were searching information about was of higher importance to them. This is in accordance with what the theory motivational factors (Beatty and Smith, 1987 and Solomon et al., 1999) state, that search activity is greater when the product is perceived important because there is a need to learn more about the purchase.

Regarding the issue of perceived risk dealt with under situational variables, none of the respondents felt that risk influenced their search activity online. However, despite this they still adopted measures to reduce the risk of inaccurate information. More specifically, they searched for more information sources in order to lower the risk. Hence, the data is somewhat applicable to what is stated by Mitra et al. (1999) and Taylor (1998) who state that risk and search effort are positively related.

Five out of the six respondents felt that their search activity had increased as they had become more experienced with using the Internet. This is in accordance with the modified theory under knowledge and experience, referred to as the modified positive relationship based on Fiske et al. (1994). The sixth respondent, on the other hand, searched little in the beginning, more after moderate experience, and less now, as he had become a fairly experienced Internet user. This correlates with the modified theory based on Solomon et al. (1999) and Antonides and Van Raaij (1998) called the modified inverted-U relationship. None of the respondents had experienced a negative relationship as was suggested in the modified theory based on
Fiske et al. (1994). In addition, the respondents felt that they had become more efficient at searching over time, which is in accordance with Solomon et al. (1999).

Regarding cost of search, the respondents said that financial cost had no direct influence on their search activity online. It was not expensive for them to use the Internet and therefore financial cost did not influence their search. This is not in accordance with what has been stated by Antonides and Van Raaij (1998) and Smith (2000). Furthermore, the time cost associated with searching on the Internet was perceived low by the respondents, which influenced them to search more also in accordance with what Jiang (2002) and Beatty and Smith (1987) suggest. Finally, Jiang (2002) state that time cost is the only cost factor significant for search in electronic environments, which is also what can be found in the empirical data.

The respondents also mentioned that they for the most part only used the Internet to search for information and not to place any purchases. However, their Internet purchases were increasing. This is something that was not brought up in any of the reviewed literature.

**Case Three: An Asian Perspective**

For research question one, the first theory analyzed with the empirical data, is under the title market environment and has to do with the difficulty of the choice task. As mentioned in the literature, there are three types of decision-making (Peter & Donnelly Jr., 2000 and Solomon et al., 1999). For this case, products requiring routine decision-making were not at all searched for online by the respondents. Furthermore, products requiring limited decision-making were searched for to a very limited extent on the Internet and were almost non-existing. The only types of products sought for more frequently online were the ones that involved extensive decision-making. Hence, the theory is somewhat applicable. Moreover, when comparing the data to Peter and Donnelly Jr. (2000) shopping goods were searched for to a limited extent, while specialty goods were the ones searched for the most, which is somewhat in accordance with what the theory suggested. On the other hand, the respondents did not seek for convenience goods at all.

According to Jarvis (1998) and Pereria (1999), the number of alternative information sources online is too overwhelming and are, therefore, reduced by the searching consumer. This is somewhat in accordance with what was stated by the respondents. Even though they felt that they were not influenced by the amount of information sources available, the respondents adopted measures in order to reduce the number of sources. For example, they stayed with certain familiar search tools when searching for information.

**Complexity of alternatives** mentioned by Ward and Lee (2000) suggests that consumers have to require more information online due to the problem of inaccurate information. This was also mentioned by the respondents in the focus group. They searched for more information in order to compare and sort out the trustworthy sources. Furthermore, when comparing Jarvis’ (1998) study to the empirical data it can be noted that the two do not correlate entirely. The respondents did not feel that the Internet was very accurate in providing product information, instead they perceived that their friends and the sales people in physical stores could provide more accurate information. According to Jarvis (1998), friends should be rated high on the accuracy scale, the Web in the middle, and sales people low.

Beatty and Smith (1987) and Solomon et al. (1999) bring up motivational factors as an individual difference that influence search activity. More specifically, the authors state that
Analysis

products of high importance require extensive search by the consumer. This is in accordance with the empirical data, where the respondents explain that they search more for products that were perceived to be of high importance.

Situational variables deal with the perception of risk as an influencing factor on search activity. When comparing the empirical data with the theories by Mitra et al. (1999) and Taylor (1998) the findings correlate. More specifically, the perception of risk increased product information search for the respondents, which is in accordance with what was stated by the authors. In addition, the respondents perceived inaccurate information online to be the most influential risk. The authors also said that another way of reducing risk was through increased brand loyalty. This was something that the respondents also did in their struggle to reduce the perceived risk.

Regarding knowledge and experience, Internet experience and amount of search had two different outcomes among the respondents. All, but one, of the respondents felt that their amount of search had increased over time, which is in accordance with the modified positive relationship based on Fiske et al. (1994). One respondent, however, also brought up a different relationship, where the amount of search had remained constant over time, which is not found in any of the literature reviewed. The other two theories, the modified negative relationship based on Fiske et al. (1994) and the modified inverted-U relationship based on Solomon et al., (1999) and Antonides & Van Raaij, (1998), did not correlate with what the respondents explained. However, the more experienced Internet users, among the respondents, also explained that their search activity had become more focused and efficient over time, but that the amount of search they conducted still had increased. This is somewhat in accordance with what Solomon et al. (1999) suggest about the more knowledgeable consumers in the inverted-U relationship. That is, with experience the consumers developed a more focused information search.

The influence of cost of search on search activity was also discussed. Half of the respondents said that financial cost associated with information search online had a significant impact. This is since their financial cost for having the Internet was high, which made them search less. The other half had lower expenses associated with using the Internet and in turn, they did not feel that this type of cost had a significant influence on their search activity. This is somewhat in accordance with Antonides and Van Raaij (1998) and Smith (2000) who have stated that high financial cost makes the consumer prioritize his/her search and therefore search less. According to Jiang (2002) and Beatty and Smith (1987), search increases with greater time availability. This correlates with what the respondents said. They felt that the issue of time cost mostly had to do with technology and then especially with slow or fast connections. That is, slow connections influenced them to search less and fast connections influenced them to search more. This is something that was not brought up in any of the reviewed literature. Finally, the empirical data from this group can only be somewhat compared to what was stated by Jiang (2002) that time cost is the only significant factor online. This is due to the fact that half of the respondents said that financial cost had an influence on search.

An additional topic discussed in the group was that the Internet was for the most part only used to find information. In their opinion it was too unsafe to make purchases online and therefore, the Internet was merely a source of information. This is something that was not discussed in the literature.
5.1.2 Cross-Case Analysis

According to Miles and Huberman (1994) when conducting a cross-case analysis, pattern coding has an important function. It lays the groundwork for the analysis by pulling together a lot of material into a more meaningful and parsimonious unit of analysis. In addition, pattern coding enables common themes and directional processes to surface (Ibid.). Therefore, pattern coding will be used in most of the cross-cases in this thesis. The coding used will be explained beneath the cross-case tables.

When comparing the three cases for research question one, both similarities and differences were detected. These are shown in Table 5.1 below. The similarities and differences will be discussed further in the text following the table.

Table 5.1. Factors Influencing Product Information Search Online

<table>
<thead>
<tr>
<th>Variable / Focus Group</th>
<th>European Group</th>
<th>North American Group</th>
<th>Asian Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty of the Choice Task</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of Decision Making</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Routine</td>
<td>+ +</td>
<td>- +</td>
<td>- +</td>
</tr>
<tr>
<td>- Limited</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
</tr>
<tr>
<td>- Extensive</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
</tr>
<tr>
<td>Type of Product</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
</tr>
<tr>
<td>Number of Alternatives</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
<tr>
<td>Complexity of the Alternatives</td>
<td>+ +</td>
<td>- -</td>
<td>+ +</td>
</tr>
<tr>
<td>Motivational Factors</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
</tr>
<tr>
<td>Perception of Risk</td>
<td>+ +</td>
<td>- -</td>
<td>+ +</td>
</tr>
<tr>
<td>Knowledge &amp; Experience</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
</tr>
<tr>
<td>Cost of Search</td>
<td>- -</td>
<td>- -</td>
<td>+ +</td>
</tr>
<tr>
<td>- Financial</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
</tr>
<tr>
<td>- Time</td>
<td>+ +</td>
<td>+ +</td>
<td>+ +</td>
</tr>
</tbody>
</table>

Source: Authors’ own construction (2003)

Coding: + + = Was perceived to have an influence and the behavior supported this
        + - = Was perceived to have an influence, but the behavior did not support this
        - + = Was perceived not to have an influence and the behavior supported this
        - - = Was perceived not to have an influence, but the behavior did not support this

Regarding the first theory reviewed under market environment, the types of decision-making, all of the three cases were fairly similar in their responses. To begin with, none of the respondents in either of the cases conducted any information search for products requiring routine decision-making. However, concerning the limited decision-making the cases were slightly different. The European and North American group were similar and conducted information search to a lesser extent for products that were less complex and/or of lower
value, like CDs, books, and small electronic products. The Asian group, on the other hand, did only conduct information search for products requiring limited decision-making very seldom, and then only for books. In addition, all the groups primarily searched for price information when it came to products that required limited decision-making. When it came to the extensive decision-making all the cases were very similar. The respondents all put down the most effort on searching for information for products that were more complex and/or of higher value. These products were the main targets when it came to product information search online. Consequently, different types of decision-making had an influence on the search activity for all of the focus groups.

The type of product searched for online also had an influence on the search activity conducted by the respondents in all of the cases. More specifically, according to the empirical data, specialty goods were searched for with great effort by all the respondents, while shopping goods were searched for only to a limited extent. However, convenience goods were not searched for at all on the Internet because it was perceived to be more easily done in the physical store.

When discussing whether the number of alternative sources online had an influence on search activity, all of the cases had similar responses. That is, that it had no affect on their product information search. However, the respondents’ behavior of utilizing habits and other measures to reduce the amount of information to a more reasonable amount, spoke differently. In all of the cases, the respondents used certain Web sites that they were familiar with and felt were a good search tool. Hence, the respondents relied on only a few sources because they did not have the resources to search the entire Web.

Regarding the issue complexity of the alternatives the cases varied somewhat. The European and the Asian groups were similar in their opinions. They both recognized that the posing of inaccurate information on the Internet was an influencing factor in their search activity. More specifically, it made the respondents, in these two groups, search for more information sources in order to validate the product information found. The North American group, on the other hand, did not recognize inaccurate information online to be an influencing factor in their search activity. The respondents in this group felt like they could determine by themselves if the information was correct or not. However, the respondents also added that they would search for more information sources when it came to more expensive and complicated products in order to receive accurate information. Furthermore, the European and the North American groups were comparable when it came to the accuracy scale. They both felt that the Web was more accurate than salespeople. The Asian group, on the other hand, had a different opinion. They felt that the Web was the most inaccurate information source of all and that salespeople in the physical stores were more accurate.

All of the cases brought up motivational factors as an influencing factor when it came to search activity online. The respondents engaged in a more extensive search when the product they were seeking information about were of high importance to them because they needed to learn more before purchasing. In addition, high importance was associated with the search for high-value and more complex products.

The issue of perceived risk online was regarded as more influential in the European and the Asian groups, than in the North American. The European and the Asian groups felt that there was a risk involved with product information search online, and were especially concerned with the risk of the inaccurate information posed. This risk made the respondents in both of
the groups search for more information in order to correctly judge the information’s accuracy. The North American group, however, felt that the perceived risk was not an influencing factor in their search activity. Nevertheless, the respondents in this group also admitted that they searched for more information sources to lower the risk of inaccurate information online. Moreover, all of the groups also stated that the risk was higher when searching for products of high-value.

Table 5.2. Experienced Relationship Between Information Search and Internet Experience

<table>
<thead>
<tr>
<th>Variable/Case</th>
<th>European Group</th>
<th>North American Group</th>
<th>Asian Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Modified Positive Relationship</td>
<td>Experienced by 9/10ths of the Group</td>
<td>Experienced by 5/6ths of the Group</td>
<td>Experienced by 7/8ths of the Group</td>
</tr>
<tr>
<td>- Modified Negative Relationship</td>
<td>Not Experienced</td>
<td>Not Experienced</td>
<td>Not Experienced</td>
</tr>
<tr>
<td>- Modified Inverted-U Relationship</td>
<td>Not Experienced</td>
<td>Experienced by 1/6ths of the group</td>
<td>Not Experienced</td>
</tr>
<tr>
<td>- Constant Relationship*</td>
<td>Correlated With 1/10ths of the Group</td>
<td>Had no Correlation</td>
<td>Correlated With 1/8ths of the Group</td>
</tr>
</tbody>
</table>

*Relationship was mentioned by the participants and had not been reviewed in the literature.

Source: Authors’ own construction (2003).

The respondents in the three cases were fairly similar when it came to the factor knowledge and experience, as can be seen in Table 5.2. above. However, there were also a few major differences. To begin with, most of the respondents in the cases felt that their search activity had increased as they became more experienced with using the Internet (modified positive relationship). This is due to the fact that they felt it became increasingly easier to search and therefore searched more. There was also one respondent in each group that had a different opinion. In the North American group one respondent felt that his search activity had increased at first, but that after a while it had decreased (modified inverted-U relationship). His explanation for this was that he had become experienced enough to narrow his search down because he knew how and where to search. In the European and the Asian groups the two respondents had yet another behavior. They explained that their search activity had not changed at all as their Internet experience increased, but that it had remained constant (constant relationship). Furthermore, all of the cases were practically stating the same thing, that as the Internet experience increased, the information searching online became more efficient and straightforward.

On the topic cost of search, the factor that varied the most between the cases, was financial cost. In the European and North American groups the respondents said that financial cost had no direct influence on their search activity online since the cost of having the Internet was low and was used for other things than just searching. The Asian group on the other hand, said that financial cost had an influence on search activity online. Half of the respondents had very high Internet charges and said that this financial cost made them search less. The other half of the respondents had lower financial costs associated with having the Internet and were therefore, able to search more. Regarding time cost, the three cases correlated in their discussions. All of the respondents said that time cost had an influence on search activity online. More specifically, the low time cost with searching online compared to the real world made them search more. The Asian group also added that time cost was mostly associated with technological capabilities, slow connections reduced search while fast connections increased it.
The European group brought up an additional factor not mentioned by the other groups. That is that they searched less if they were familiar with the brand name they were interested in, than if they only knew the product type.

Finally, in all of the groups the Internet was more of an information source when it came to purchase decisions. The actual purchase was usually conducted in the real world. However, the North American group was a little bit more willing to make purchases online than the other two groups.

5.2 Preferred Search Tools for Retrieving Product Information Online
The second research question aims to describe the most preferred search tools utilized for product information search online.

5.2.1 Within-Case Analysis
Case One: A European Perspective
Most respondents in the group said that the most preferred search tool when searching for product information was the browser. This is something that has not been mentioned in the reviewed literature. Instead, Jupiter Media Merix (2001) and Thelwall (2001) have other findings regarding the most preferred search tools. Jupiter Media Metrix (2001) found search engines to be the most preferred search tool, while Thelwall (2001) found Web directories and search engines to be the most popular. Search engines were considered the second choice by the group. In addition, Web directories were fairly popular in the group and were rated third. Hence, Thelwall’s (2001) study is somewhat in accordance with the empirical data. Furthermore, shopping bots were rated as number four and review forums as number five out of the most used search tool by the respondents. These two search tools were not rated in any of the literature and review forums were not mentioned at all. The least used search tool in the group was newsgroups since it was only used by one respondent to a very limited extent. Newsgroups were not rated in any of the theory studied.

Out of the general search tools and the specially designed search tools (Rowley, 2000a, Rowley, 2000b, Green, 2000, Gordon & Pathak, 1999, and Thelwall, 2001) available for retrieving information online, the respondents used all of them to some degree. To begin with, the browser was mainly used because it was easy and fast by just typing in a URL address of a known Web site This is in accordance with Rowley (2000b) who found that to be the typical way of using the browser. Secondly, the respondents found search engines especially useful when their knowledge of the product sought for was limited. This correlates with Gordon and Pathak (1999) who stated that searching the Internet would be useless for the users, if there were no search engines, as they would not even know where and how to begin. The respondents also said that they liked that the search engines searched the entire Web, which is also what Rowley (2000a) and Gordon and Pathak (1999) have said to be one of the benefits with search engines. In addition, the respondents said that they hardly utilized the advanced search tool function provided by search engines, which is in accordance with hat is stated by Thelwall et al. (2001). The reason for this lack of use was according to Jansen (2000) that these functions only provided minor improvements in what is retrieved. On the contrary, the respondents had a different reason, namely that they were too complex to understand.

Thirdly, Web directories, with their humanly made categories, were found to be a good way of finding product information on the Internet, due to the fact that someone had already minimized the information posed by determining its relevancy. This is somewhat in accordance with what is stated by Green (2000), Rowley (2000a) and Thelwall et al. (2001)
that Web directories are popular because they provide a head start in identifying relevant information specific to the information needed. Fourthly, *newsgroup searching* was only perceived useful by one of the respondents and then only when he needed product information that was very specific or out of date. The general idea of the rest of the group was that it was difficult to determine the relevancy of the information posed in newsgroups, because they did not know the expertise of the person giving his/her opinion. This is not in accordance with what has been predicted by Green (2000), who believed that consumers would seek out experts or anyone qualified through newsgroup searching to help with their information retrieval. Fifthly, *shopping bots* were perceived to be reliable and good information providers, since they enabled product comparison with several different brands. This is also what Rowley (2000a, 2000b) has stated to be the main benefit of shopping bots. Finally, the respondents brought up an additional search tool, which had not been mentioned by any of the authors reviewed. The respondents referred to this tool as “review forums”, which are Web sites providing product reviews by other private consumers. They liked this tool because it provided product information from other consumers.

Regarding *how consumers utilize search tools* online all of the respondents preferred to use the search tools that were familiar to them and would only try a new one if they heard about it through word-of-mouth. This is in accordance with Ivonen and White (2001) who say that Web surfers prefer to use known sites when searching. However, the influence of word-of-mouth is not mentioned in any of the literature reviewed. In addition, Ivonen and White (2001) have found that when conducting search online consumers tend to use rather simple searches when using search tools, and especially search engines. This can be directly compared to what was stated by the respondents. They said that they hardly ever used the more advanced search tool functions, but that they rather stayed with the regular search functions where they only needed to type in a search query.

Jupiter Media Metrix (2001) has found that consumers differ in how they search for information online. This is somewhat in accordance with what the respondents stated, however, the respondents also brought up an additional factor that influenced how they searched. They stated that two categories, namely pre-product knowledge and type of product, had a significant influence. This is something that is not taken into consideration by Jupiter Media Metrix (2001), which instead has measured the mostly used methods. However, these methods are somewhat comparable to the ones mentioned by the respondents. The respondents stated that, for the most part, they knew the brand name they were searching and then just went straight to the Web site by using the browser, which is similar to the second method mentioned by the authors “go straight to store URL.” The only exception being that the respondents not only went to a store, but also directly to a brand’s Web site. If they could not find what they wanted by using this method they would “type the brand name in search engine”, which is comparable to the third method. Furthermore, when the respondents did not know the brand name, they would type in the product name in a search engine, which correlates to the first method mentioned in the theory, “type product name in search engine.”

Regarding the second category, type of product, the respondents said that when they were searching for low-value and/or fairly uncomplicated products they would go straight to some kind of shopping bot or shopping channel that they had previous knowledge of. This is somewhat in accordance with the second method since they would use the browser to do this. For more expensive and complex products, the respondents usually first went to a search engine to find general product information. Later some of them would go to review forums to find more unbiased opinions on the products whereas the others would stay with the search
engine. This correlates with method number one in the theory “type product name in search engine” to some extent. Method numbers four and five mentioned in the theory “type store name in search engine” and “go to shopping channel of search engine” were not used by any of the respondents in the group.

Finally, when comparing the different used methods by the respondents, the methods mostly used was typing address in browser and typing product name in search engine, which is the first and second most used method according to Jupiter Media Metrix (2001).

Case Two: A North American Perspective
Regarding the most preferred search tools online the majority of the respondents favoured search engines. This is in accordance with what has been found by Lindström and Andersen (2000), Jupiter Media Metrix (2001) and Thelwall (2001) who states that search engines are the most popular search tools online. However, Thelwall (2001) also state that Web directories were among the most popular search tools on the Web, which is not the case for the respondents in the group who had it rated as number five. The most common second choice among the respondents in the group was the browser. Furthermore, review forums and shopping bots were rated number three and four respectively. None of these search tools were rated in any of the literature reviewed and the search tool review forums were not even mentioned at all. Newsgroups were not used as a product information search tool by any the respondents.

Regarding the tools available for retrieving information online the respondents utilize three out of the four general search tools and all of the specially designed search tools (Rowley, 2000a, Rowley, 2000b, Green, 2000, Gordon & Pathak, 1999, and Thelwall, 2001). To begin with, the respondents liked the search tool browser since it was an easy and fast way of getting where they wanted on the Web when they knew the URL address. This correlates with what was stated in the theory concerning browsers by Rowley (2000b). The next search tool brought up in the literature was the search engine. According to the respondents in the group they used search engines because they were a good tool to use when searching for information online, and especially when the information sought was not clear to them. In addition, they liked the information brought back and the manner that the results were presented. These are issues also brought up by Rowley (2000a) and Gordon & Pathak (1999) in their discussion on search engines. Regarding the advanced search tool functions provided by some search engines, only one of the respondents used them, which is somewhat comparable to Thelwall et al.’s (2001) statement that very few searches include these facilities. In addition, Jansen (2000) has found that the reason for this is that they only provide minor improvements, which is in accordance with what was stated by the respondents.

Web directories were identified in the literature to be a suitable way of starting a search because they reduce the amount of irrelevant information that exists online through human involvement (Green, 2000, Rowley, 2000a, and Thelwall et al. 2001). However, this is not how the respondents viewed the search tool. They felt that Web directories in general were too unspecific and did not provide them with that much useful product information. The last search tool mentioned among the general search tools, newsgroup searching, was not utilized by any of the respondents. They perceived it to be slow and a waste of time since they believed that they could not get the solid product information they wanted. This is not in accordance with what was stated by Green (2000), who predicted that consumers would utilize newsgroups more and more in order to seek out so called experts to help them in their information seeking. Finally, the only search tool mentioned among the specially designed
search tools was shopping bots, which were said to be useful since they bring together several kinds of products ready for comparison (Rowley, 2000a, 2000b). This is in accordance with what was stated by the respondents to be one of the reasons why they liked this tool.

The respondents also brought up an additional search tool used for product information search online which they referred to as review forums. This type of tool was not mentioned in any of the literature reviewed and is simply put, Web sites containing reviews from other consumers.

On the topic on how consumers utilize search tools Livonen and White (2001) state that consumers prefer to use known search tools when they search online. This correlates to what was mentioned by the respondents, who explained that they used familiar search tools because it was convenient and because there was too many search tools out there for them to have tried of them all. As a matter of fact, word-of-mouth was said to be the only thing that would persuade the respondents to try another search tool. This is something that is not mentioned in the theory. In addition, Livonen and White (2001) continue by stating that consumers also use fairly simple searches when searching online, which is also found to be the case for the respondents. They hardly ever used more advanced search functions, but rather used the regular way of searching since it functioned well enough.

According to Jupiter Media Metrix (2001) consumers have different ways of searching for product information online. This is in accordance with what was brought up by the respondents. However, the respondents also brought up an additional issue that was not discussed in the theory. That is that the respondents’ preferred search tools varied depending on what type of product information they were searching for. The different ways that the consumers searched for product information online depended on four issues, and these issues can be somewhat correlated to the five methods brought up by Jupiter Media Metrix (2001). First, if the respondents knew what brand name they were interested in the information search consisted of simply typing in a URL address in the browser. This can be compared to the second method “go straight to store URL,” mentioned in the theory. However, if they could not find what they were looking for, they would type in the brand name in a search engine. This, correlates to the third method, “type brand name in search engine”. Secondly, if the respondents only the product category they wanted, all of them would go to a search engine in order to find the different brands available, which is similar to method number one “type product name in search engine”.

Thirdly, if the respondents wanted information about a low-value and/or less complex product they went straight to a shopping channel or shopping bot. This can be somewhat compared to the second method again because to get to these shopbots they simply typed in the URL address in the browser. Finally, if the product sought was more complex and/or of higher value, most of the respondents would go to shopping bots that provided information on several different products ready to be compared. These search tools were usually already in the minds of the respondents because they had had previous experience with them. Hence, method two again. However, if the product sought for could not be found on these Web sites the respondents would use a search engine. The two respondents that did not use these types of search tools instead went directly to a search engine to find the information, which is similar to method number one, also mentioned above. Method four “type store name in search engine” and method five “go to shopping channel of search engine” mentioned in the theory were hardly ever used by the respondents and are therefore not applicable in this case. The methods mostly used by the respondents correlates with the findings of Jupiter Media Metrix (2001) since they were type URL in browser and type product name in search engine.
Case Three: An Asian Perspective

When asked to rank their most preferred search tool for product information search online, all of the respondents had search engines as their number one choice. This is also what Jupiter Media Metrix (2001) and Thelwall (2001) suggest. However, Thelwall (2001) had both search engine and Web directories as the most preferred search tools, but the majority of the respondents said that Web directories were their third choice and not their first. Consequently, the empirical data mostly correlate with what the theories suggested. Furthermore, the browser was the second most used search tool, newsgroups were ranked as number four, number five were shopping bots, and the last one, number six, were review forums. These are tools that had not been rated in any of the literature reviewed and review forums were not even included in the conceptualized literature, but were something that was added by the respondents.

When discussing the tools available retrieving information online and then more specifically, the general search tools and the specially designed tools (Rowley, 2000a, Rowley, 2000b, Green, 2000, Gordon & Pathak, 1999, and Thelwall, 2000), the respondents used all of the tools reviewed in the literature. First, the browser was mainly used because it was easy when they were clear on what they were looking for because they could simply type in the address in the address bar. This was also what Rowley (2000b) had suggested was a typical way of using the browser. Second, Rowley (2000a) have stated that one of the major benefits with search engines is that they search the entire Web. This is somewhat in accordance with what the respondents expressed. More specifically, the participants liked that search engines made their search easier as they included a wide variety of information. Furthermore, the majority of the respondents did not utilize advanced search functions found in many search engines. This correlates with what was stated by Thelwall et al. (2001) that only a few searches are made through these functions. The reason for not using the advanced search was that the respondents felt that they were too complicated, which is not in accordance with Jansen’s (2000) findings.

Third, the majority of the group felt that Web directories were a good starting point when initiating their search. More specifically, they liked that the information was categorized and that each category held rather relevant information. This is in accordance with Green (2000), Rowley (2000a), and Thelwall et al. (2001), who have stated that this approach should only show sites that are relevant to the information sought for. Forth, Green (2000) has stated that newsgroup searching is a good means for finding experts, or anyone that have the knowledge to help you with your problems. This correlates with what the respondents have said about their use of newsgroups, as they felt it was a good way of having feedback from others when their friends could not help. Fifth, the respondents said they all used shopping bots or “Web sites that contain information about many different products and brands” occasionally. More specifically, these Web sites were often local and were used if they wanted to compare products, but were not quite sure what they wanted. This is applicable to what has been stated in the reviewed literature by Rowley (2000a, 2000b) about shopping bots and that those help e-shoppers identify, locate, and compare different products. A final search tool that was used to a limited extent and only by some of the respondents was the review forum, which had not been brought up in any of the literature reviewed. The respondents found this to be useful as they felt it was more unbiased than much of the alternative product information from companies both online and offline.

Iivonen and White (2001) have stated that how consumers utilize search tools differ between searchers. According to what they have found searchers prefer sites that are known, to browse
the Web, and to use simple searches in search engines. This correlates with the respondents who said that they used the same search tools because they were familiar to them and knew how to use them. Moreover, the literature correlate with what the respondents have said about using simple searches as well. The majority would not use anything but the simple search mode as they felt the advanced mode was too complicated to use.

According to Jupiter Media Metrix (2001), respondents differ in how they search for product information online. This correlates with what was stated by the respondents to some extent. First, the respondents said that if they knew the brand they wanted information on; they would look for the company Web site by using a search engine. This can be compared to method three, “type brand name in search engine”, mentioned in the theory. Second, if the respondents did not have a brand preference for the product they wanted information on, they would either go to a known Web site that held information on different brands available, or go to friends and ask them about their brand preferences. Not until then would they use the search engine to look for more specific product information. This can be somewhat compared to method two, “go straight to store URL”, and later method one again. This method can also be compared to the third thing brought up by the respondents. More specifically, the respondents said that when they were searching for information on more expensive products brand names were even more important. Therefore, they would first try to form a brand preference by going to a local Web site or ask their friends, as mentioned above. After that they would go to a search engine in order to find more information. Fourth, the majority of the respondents did not search for low-value products online and the ones that did, already had known Web sites or shopping channels that they used. This can be compared to method two “go straight to store URL” because the respondents would get to these Web sites by just typing the address in the browser. Furthermore, none of the respondents used method one, four or five, “type product name in search engine”, “type store name in search engine”, or “go to shopping channel of search engine” when searching for product information. Hence, this is not in accordance with Jupiter Media Metrix (July, 2001).

Finally, when comparing the most used method according to Jupiter Media Metrix (2001), “type product name in search engine”, with the findings they do not correlate. The respondents do not use this method at all because they feel that it brings back too many results, on the other hand they prefer the third method mentioned in the theory, “type brand name in search engine”.

5.2.2 Cross-Case Analysis
Both similarities and differences were detected when comparing the three cases with one another. These are shown in Table 5.3 and 5.4 on the following pages. The similarities and differences will be discussed in further detail in the text following the tables.
Table 5.3. The Search Tool Ratings

<table>
<thead>
<tr>
<th>Variable/Case</th>
<th>European Group</th>
<th>North American Group</th>
<th>Asian Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browsers</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Search Engines</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Web Directories</td>
<td>3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Newsgroups</td>
<td>6</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Shopping Bots</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Review Forums</td>
<td>5</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

*Source: Authors’ own construction (2003)*

Coding: 1 = The most used search tool  
6 = The least used search tool  
- = Not used

Regarding the most preferred search tools used online, the European group preferred the browser, while the North American and Asian groups preferred search engines. Thereafter, the European and the Asian groups were fairly similar in the choices, rating browsers, search engines, and Web directories at the top and newsgroups, shopping bots, and review forums at the bottom. The North American group on the other hand, was different from the other cases. They rated search engines, browsers, and review forums at the top and shopping bots and Web directories at the bottom. In addition, newsgroups were not used at all by the North American group.

Regarding the general search tools online the three focus groups were fairly similar in their opinions, as can be seen in Table 5.4 on the following page. To begin with, when discussing browsers all of the cases had the same reason for using them, namely that they were easy and fast to use because they only had to type in a Web address in the address bar. Search engines were also used by all of the groups because they were perceived to easily reach the entire Web in searching for information. In addition, the European and the North American groups specifically liked to use search engines when they were searching for products that they did not have a clear understanding of. Moreover, the respondents rarely used advanced search tool functions. The reason for this, was for the European and Asian groups that they were too complicated to understand, while the North American group felt that they only provide minor improvements compared to the regular functions.

Web directories were perceived differently between the cases. The European and the Asian group thought that this tool provided relevant information since it had been reviewed by the creator of the categories. The North American group, on the hand, felt that Web directories contained unspecific and no useful information and therefore they did not utilize them that much. Finally, regarding newsgroup searching, the Asian group was the only one that really found them useful, and then because they felt that they gave them feedback on their search queries. The European group used it to a certain degree, but also felt that it was hard to determine the relevancy of the information received. The North American group, on the other hand, felt that newsgroups were a total waste of time when it came to product information search.
Table 5.4. Preferred Search Tools for Retrieving Product Information Online

<table>
<thead>
<tr>
<th>Variable/Case</th>
<th>European Group</th>
<th>North American Group</th>
<th>Asian Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>General search Tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Browsers</td>
<td>Easy and fast to use</td>
<td>Easy and fast to use</td>
<td>Easy and fast to use</td>
</tr>
<tr>
<td>- Search Engines</td>
<td>Especially good when information sought was not clear</td>
<td>Especially good when information sought was not clear</td>
<td>Search the entire Web, easy and can search a wide variety of info.</td>
</tr>
<tr>
<td>- Web Directories</td>
<td>Provide relevant information</td>
<td>Unspecific and no useful information</td>
<td>Provide relevant information and good starting point</td>
</tr>
<tr>
<td>- Newsgroup Searching</td>
<td>Difficult to determine relevancy</td>
<td>Slow and a waste of time</td>
<td>Good way of receiving feedback</td>
</tr>
<tr>
<td>Specially Designed Search Tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Shopping Bots</td>
<td>Product comparison and information in one place</td>
<td>Product comparison and information in one place</td>
<td>Product comparison and information in one place</td>
</tr>
<tr>
<td>- Review Forums*</td>
<td>Opinions from other product users</td>
<td>Opinions from other product users</td>
<td>Opinions from other product users</td>
</tr>
<tr>
<td>How Consumers Utilize Search Tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preferred know sites and rather simple searches</td>
<td>Preferred know sites and rather simple searches</td>
<td>Preferred know sites and rather simple searches</td>
<td></td>
</tr>
<tr>
<td>- Type product name in search engine</td>
<td>Was Used</td>
<td>Was Used</td>
<td>Was Not used</td>
</tr>
<tr>
<td>- Go straight to store URL</td>
<td>Was Used</td>
<td>Was Used</td>
<td>Was Used</td>
</tr>
<tr>
<td>- Type brand name in search engine</td>
<td>Was Used</td>
<td>Was Used</td>
<td>Was Used</td>
</tr>
<tr>
<td>- Type store name in search engine</td>
<td>Was Not Used</td>
<td>Was Not Used</td>
<td>Was Not Used</td>
</tr>
<tr>
<td>- Go to shopping channel of search engine</td>
<td>Was Not Used</td>
<td>Was Not Used</td>
<td>Was Not Used</td>
</tr>
</tbody>
</table>

* Review forums were brought up in the three cases, but had not been mentioned in the reviewed literature.

Source: Authors’ own construction (2003)

When looking at the specially designed search tools, all of the three cases felt that shopping bots were good since they provided information and product comparison in one place. In addition, this tool was mostly used by the respondents in the North American group, followed by the European group. The Asian group only utilized it to a limited extent.

All of the cases also brought up a search tool that they utilized more or less. This tool was referred to as review forums and was liked because it presented reviews written by other consumers. Review forums were, therefore, perceived as a more unbiased search tool.

On the topic of how consumers utilize search tools online all of the three cases were directly comparable. They all stated that they preferred to use search tools they were familiar with and only tried new ones if they had heard about it through word-of-mouth. Word-of-mouth was very influential in all of the cases when it came to the Internet. In addition, all of the focus groups stated that they hardly ever use advanced search tool functions, but instead relied on the simple search modes.
Regarding the different methods and search tools used, when searching for product information online, all of the three cases brought up the fact that their search behavior depended on several different factors. First, the cases brought up the fact that if they knew the brand name they were searching for they would go straight to that company or brand Web site. The European and the North American group would do so by typing in an address in the browser, and would only use a search engine if that did not work. The Asian group on the other hand would try to find this Web site by typing the brand name in a search engine. Second, the factor of only knowing the product name was brought up in all of the groups, but here there was more of a difference in the methods used. The European and the North American groups said that they would use a search engine to find information about all the brand names. The Asian group however, said that a search engine would produce too many results if they did not know the brand name. Therefore, they would first try to develop a brand preference either by asking friends or by visiting a local Web site, like a shopping channel or a shopping bot, which provided information about several different brands.

The third factor mentioned by the groups had to do with if they were searching for information about a product that was uncomplicated and/or of low-value. The European and North American groups would go straight to a shopping channel or shopping bot to find information and make comparisons. In addition, these search tools were usually already in the minds of the respondents. The Asian group would also use this type of search tool for these types of products; however, they were only searched for by a few of the respondents in this group. Finally, the factor of searching for information about more complex and/or products of high-value was brought up in the cases. This is the factor that created the most differences between the cases. To begin with, the European group stated that they would go to a search engine when they needed information for these types of products because they felt that this tool could provide them with in-depth information form several sources. The North American group, on the other hand, would go to a shopping channel or shopping bot that provided information about several brands in one place. Only if they could not find the product in these search tools, would they go to a search engine. Finally, the Asian group would form a brand preference first by asking their friends or by going to a local shopping channel or shopping bot. When they knew the brand they would continue searching for information by using a search engine.

The European and North American groups used the browser and typing in a product name in a search engine the most, where as the Asian group typed in brand name in a search engine the most.

5.3 Problems Associated with Product Information Search Online

With the third research question the aim is to describe possible problems associated with product information search online.

5.3.1 Within-Case Analysis

Case One: A European Perspective

The respondents had all experienced problems when searching for product information online. More specifically, when discussing searching difficulties that the respondents had experienced when searching online, they first brought up the difficulty of specifying their search query in a way that was understood by the search tool. More specifically, the respondents found it even more challenging to specify their query when they were not certain what they were looking for and therefore, they did not always find the information they sought. This is something that both Kline (2002) and Thelwall et al. (2001) in the reviewed literature, had described to be
perhaps one of the greatest challenges a searcher could have. Another challenge that was brought up by Kline (2002) and Thelwall et al. (2001) had to do with disambiguating words that have more than one meaning. This is in accordance with what the respondents expressed because they found it difficult to receive relevant results as the search query could have one or more completely different meanings.

Regarding **retrieval issues** the respondents felt that a frequent problem was the relevancy of the search results brought back from the search tool. It was perceived a problem since it took a long time to find the desired information among all the unrelated results. More specifically, they said that the results often included old links, too many irrelevant hits, and sometimes the same Web site kept appearing. This correlates with what the authors in the reviewed literature (Kline, 2002, Gordon & Pathak, 1999, Thelwall et al., 2001, Vaughan, 1999, and GVU’s Ninth Survey, 1998) have stated about search tools that bring back results, which are only slightly related.

A frequent **document discrimination problem** brought up by the respondents was the occurrence of search tools producing an overload of results. As a result, half of the respondents would only investigate between three to ten links before giving up, even though they were often left unsatisfied. Kline (2002) and Poulter (1997) have said that a typical problem consumers face, using search tools, is that they produce too many results. Hence, the theory is in accordance with what the respondents expressed.

None of the respondents would use search tools that had too problematic designs. This is in accordance with what is stated by Kline (2002) and Vaughan (1999), that problematic designs will have a negative influence on consumers’ usage of the site. Furthermore, the respondents had specific opinions, on what they accepted and not, when it came to **interface design quandaries**. They did not accept cluttered interfaces with blinking banners and popups. Instead they preferred search tools that were clean, easy to use, and had limited advertisements. Another specific problem brought up by the respondents was the issue of non-functioning search tools displaying errors. These problems have not been mentioned by either Poulter (1997) or Rowley (2000a), who instead bring up the problem of complexity. However, the respondents found complexity in design to be a problem regarding advanced search functions and that was also one of the reasons why they did not utilize them. Finally, the respondents also saw a problem in the design of search engines included in specific company Web sites. They said that they almost never worked and that the information found through them was often inaccurate. This is a problem that was not brought up in any of the literature reviewed.

A general problem brought up by the respondents had to do with the accuracy of the information found on the Internet. They felt it was too easy to set up fake Web sites and thereby, did not trust information from Web sites that did not have a professional appearance, or had what they called a “security mark”. This in turn made the search process exhaustive for them. This was again, something that was not brought up in the reviewed literature.

**Case Two: A North American Perspective**

The first problem brought up in the theory concerns **searching difficulties**. More specifically, Kline (2002) and Thelwall et al. (2001) begin by stating that consumers perceive, the most important problem associated with information search online, to be the difficulty in formulating queries specific enough to find relevant pages. This does not correlate to what was mentioned by the respondents in the group. Instead, they felt they were fairly good at
specifying their searches and therefore, did not consider it a problem. Next, Kline (2002) and Thelwall et al. (2000) bring up the challenge of disambiguating words. That is, words with multiple meanings, which can create problems for the searcher who is trying to, specify a query in order to receive relevant results. This was again, not perceived to be a problem by the respondents in the group. They state that they were sure that this had happened to them, but that it was not a significant issue. The respondents accepted the fact and did not see it as a problem.

A problem that the respondents did bring up had to do with retrieval issues. More specifically, they perceived it to be a problem that when searching for something very specific on the Internet, it was difficult to find relevant information. This is comparable to what is mentioned by Thelwall et al. (2001) that information sought for infrequently will be harder to find, and in turn create problems for the searcher. Moreover, the theories reviewed (Kline, 2002, Thelwall et al., 2001, Gordon & Pathak, 1999, GVU’s Ninth Survey, 1998, and Vaughan, 1999) also state that a fundamental information retrieval problem is the irrelevant results brought back from the search tools. These include for example: old links, links that only contains part of the search query, and scattered search queries. These issues were also brought up by the respondents, who stated that they were annoying but not too problematic, because they felt that they could just cancel out the irrelevant links themselves. They accepted the problem because they thought it was better than having to do the physical search themselves.

Regarding the document discrimination problem, and more specifically the amount of results brought back by the search tools, none of the respondents felt it was a significant problem. The respondents just went through the first few pages of results, and if they did not find what they were searching for they did a new search. As a matter of fact, most of the respondents would go through as many as 20 to 50 links in order to find what they wanted. This is not in accordance with Kline (2002) and Poulter (1997), who state that the excess amount of results produced by search tools is perceived to be a problem by consumers. The respondents in the group instead felt that they were experienced enough to scan through the results rather quickly, and the amount of results was therefore not considered a problem.

Concerning interface design quandaries Kline (2002) and Vaughan (1999) state that some search tools have problems with their design. This in turn, affects the consumer who moves on to another search tool. This can be compared to the empirical data where the respondents explained that they simply did not use search tools that they perceived had problematic designs. More specifically, the respondents stated that many search tools were too cluttered and had too much advertising, which they saw as a problem. This is not in accordance with Poulter (1997) and Rowley (2000a) who instead brought up complexity as the most important problem. Finally, the respondents brought up an additional design problem that had to do with search engines located on specific Web sites. They felt that they usually did not work satisfactorily and had therefore stopped using them. This is something that is not mentioned by any of the theories reviewed.

**Case Three: An Asian Perspective**

Problems associated with searching for product information online was a topic that the respondents were truly familiar with. The first problem brought up by them had to do with searching difficulties and then more specifically, the problem of specify their search query in order to receive the information they wanted. As for now, the majority felt that they received too many results and results that did not fit their search quite frequently. This is in accordance with what the reviewed literature (Kline, 2002 and Thelwall et al., 2001) had stated as one of
the main problems with search tools today. The respondents also found words with several meanings to be a reoccurring problem. It happen frequently that their search query ended up having more than one meaning and in turn, made it very difficult to search for product information online. This correlates with what Kline (2002) and Thelwall et al. (2001) stated to be the problem with disambiguating words.

The majority of the respondents said that they experienced problems regarding retrieval issues quite often. In general, the problems had to do with the relevancy of the search results brought back by the search tools. More often, than not, the results brought back were irrelevant to their search or contained links that were too old and could not be opened. These are also some of the problems mentioned by Kline (2002), Gordon and Pathak (1999), Thelwall et al. (2001), GVU’s Ninth Survey (1998) and Vaughan (1999). The main issue with these problems was that they slowed down the respondents search, since they had to go through result that were not relevant to their search.

The majority of the respondents saw the amount of information brought back by search tools as a significant problem because they usually did not have either the time or energy to go through it all. This is in accordance with one of the document discrimination problems presented in the literature (Kline, 2002 and Poulter, 1997), which says that too much information on result lists is a problem. At the same time the participants felt that too much information was better than too little, even though the majority would only go through between three to ten links. More specifically, the respondents felt that this problem was increased by Web sites that included popular words on their sites just to receive more hits. This is also mentioned in the theory by Poulter (1997), who referred to it as “index spamming”.

The literature reviewed on interface design quandaries states that users will walk away if the search tool has too many problems with its design (Kline, 2002 and Vaughan, 1999). This can be directly compared to the empirical data where the respondents stated that they overcame this problem by simply not using the search tool. More specifically, the respondents stated that some of the problems had to do with tools that were too difficult to understand, which is in accordance with what was stated by Poulter (1997) and Rowley (2000a). In addition, the respondents felt that many search tools had design problems that were related to distracting banners and advertisements. The majority of the respondents also felt that advanced search modes were too difficult to use and therefore, solely relied on the simple search modes. This is something that is not brought up in any of the reviewed literature. Finally, the respondents said that search engines that were included in specific Web sites had problems because they were non-functional and therefore, they rarely used them. They even said that navigating through the site was easier and faster. This was an issue that was not included in any of the literature reviewed.

5.3.2 Cross-Case Analysis
As can be seen in Table 5.5 on the following page, both similarities and dissimilarities were detected when discussing the problems consumers have when searching on the Internet for product information. These will be further discussed in the text following the table.
Table 5.5 Problems Associated with Product Information Search Online.

<table>
<thead>
<tr>
<th>Variable/ Case</th>
<th>European Group</th>
<th>North American Group</th>
<th>Asian Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Searching Difficulties</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Retrieval Issues</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Document Discrimination</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interface Design Quandaries</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Source: Authors’ own construction (2003)

Coding: + = Was considered a problem  
- = Was not considered a problem

The respondents in two of the three cases had experienced searching difficulties online. To begin with, the majority of the respondents in the European and Asian groups had experienced problems specifying their search query in a way that would be understood by the search tool. However, this was not considered to be a problem in the North American group because they felt they had no problem formulating their search queries. Moreover, the problem of disambiguating words also differed somewhat between the cases. The European group felt that it was as a problem, the Asian group as a frequent problem, and the North American group did not feel that it was a problem at all. The problem for the European and Asian groups was that it made it difficult for them to formulate their search queries when the words had double meanings.

Retrieval issues were something that the respondents in all the three cases had experienced rather frequently. The European and the Asian group considered it to be a fairly important problem, whereas, the North American group accepted this problem since they felt it was still better than having to do the actual work themselves. More specifically, the cases found the problems to be associated to irrelevant links brought back by the search tools. A significant problem mentioned in all of the cases had to do with the fact that, links that were too old kept occurring in the result list. The European group also mentioned the problem of the same Web sites appearing over and over again in the result list. In addition, the North American groups brought up that many of these problems came form the fact that search tools sometimes brought back results that only contained part of the search query or where the search query had been divided.

A frequent problem in the European and Asian cases had to do with document discrimination problems. This problem usually appeared in the form of excess amount of results. Here, again, the European and Asian groups were more affected by this problem because they felt that it was too time consuming to go through all the results and therefore felt unsatisfied. On the contrary, the North American respondents did not consider it a problem, as they felt they could scan the results rather quickly.

Regarding interface design quandaries, all of the groups overcame this problem by simply not using search tools with too problematic designs. All of the cases also perceived many of the problems associated with the interface design to be, too cluttered sites with too much advertising. Instead, the respondents wanted the search tools to be simple and easy to use,
because all they wanted to do on these Web sites was to search. In addition, the Asian group brought up a problem not mentioned in the other cases, which had to do with the fact that they felt that many search tools were too complex and hard to use. Both the European and the Asian groups also mentioned that they felt that many of the advanced search functions were too difficult to understand, due to their design. Finally, in all of the cases the problem with search engines located in specific Web sites was brought up. The respondents felt that these search engines for the most part was non-functioning and that they were better off not using them.

5.4 Shortcuts Utilized when Searching for Product Information Online

The last research question aims to describe what shortcuts consumers utilize when searching for product information online.

5.4.1 Within-Case Analysis

Case One: A European Perspective

The respondents all utilized shortcuts when searching online, because there was simply too much information available, for them to practically be able to search it all. This is in accordance with the theories presented by Maity et al. (2002) and Payne (1976), which state that humans utilize heuristics when they are not able to process all the information available.

When discussing the types of heuristics used online, the first shortcuts brought up by the respondents was shopbots. These were frequently used and without much consideration, when it came to uncomplicated and low-value products. This correlates to what is mentioned by Peter and Olson (1993) under search heuristics; that heuristics are simple procedures or rules for seeking information. However, the respondents also stated that these shortcuts were mostly used for uncomplicated and low-value products and not as much for more expensive and complex products. This is since they felt that they needed more information and from several sources when it came to the later. This is not in accordance with what is mentioned by Peter and Olson (1993), who state that these search heuristics are used for any type of product. In addition, Pereria (1999), Jiang (2002), and Rowley (2000a) have stated that online search tools, like shopping bots, can be considered as shortcuts because they reduce the burden of product information search for the consumer. This is applicable in this case because the reason why the respondents used shopping bots as shortcuts was that they could find much of the information needed in one place with very little effort.

The respondents also mentioned brands as a possible shortcut when searching on the Web. This is since they felt that well-known brands withheld a certain degree of security and therefore, could reduce their search effort. This is in accordance with what has been stated by Arens (1996) and Peter and Donnelly, Jr. (2000), but also with Doh (2001) and Ward and Lee (2000), who say that brands functions as shortcuts because they lower the search cost for the consumers.

Regarding choice heuristics, Mandrik (1996) and Peter and Olson (1993) state that consumers utilize some habitual heuristics when choosing what alternative to use. In addition, Maity et al. (2002) suggest that, as information overload increase on the Internet consumers will reuse the Web sites that they have had positive experiences with. This can be compared to what the respondents stated. That is, that they frequently used the same shortcuts to, for example, shopping bots, because they have had positive experiences with them and were familiar with their functions.
Case Two: A North American Perspective

According to Maity et al. (2002) and Payne (1976) consumers utilize heuristics or shortcuts when they are presented with information that they are not able to process. This can be correlated to the respondents who said that they use shortcuts because they are not able to search all the information available online.

Regarding the types of heuristics utilized online the respondents said that they usually had predetermined shortcuts that they used, which is in accordance with the search heuristics mentioned by Peter and Olson (1993). More specifically, the respondents stated that shortcuts were especially used when they were searching for basic products of lower value. Moreover, these shortcuts included shopping bots where the respondents could find out a lot of information for several different brands, and compare them at the same time. This correlates to the theories under online search tools by Pereria (1999), Jiang (2002), and Rowley (2000a), who state that shopping bots as possible shortcuts online, because they reduce the information search conducted by the consumers.

Doh (2001) and Ward and Lee (2000) also bring up brands as a shortcut utilized online. According to them, brands lower the search activity for the consumers since they signal a certain degree of security. This can be compared with the empirical data, where the respondents explained that they searched less when it came to well known brands because they were perceived to be safer. This can also be compared to Arens (1996) and Peter and Donnelly, Jr. (2000) who state that a good brand can evoke a feeling of trust.

The search tools that the respondents used as shortcuts were used without much consideration because they were already in the minds of the consumers. This is in accordance with Mandrik (1996) and Peter and Olson (1993), which state that consumers often utilize habitual heuristics. In addition, the empirical data also correlates with Maity et al. (2002) who suggest that consumers will revisit Web sites that they have had previous positive experiences with.

Case Three: An Asian Perspective

The respondents all used some type of shortcut when searching online, in order to reduce the amount of information processed. This correlates with Mairty et al. (2002) and Payne (1976) who have stated that peoples utilize heuristics or shortcuts when they cannot process all the information available.

The respondents had a few types of heuristics, which they used when searching for information online. To begin with, the more experienced respondents brought up the use of shopping bots as one of their search heuristics, which allowed them to compare price and functions of products in one place. The inexperienced users, however, had not been utilizing shopping bots in their home countries, but instead relied on their friends’ referrals. As for now, they had been exposed more to shopping bots and had begun using them, and then especially as shortcuts because they had a very limited knowledge of where else to go. This is in accordance with what has been brought up by Peter and Olson (1993), who said that heuristics simple procedures or rules for seeking information. It also correlates with Pereria (1999), Jiang (2002), and Rowley (2000a) who have stated that online search tools, for example shopping bots, can be seen as shortcuts as they make the search load smaller for the user.

The use of brands as a shortcut, when searching for product information online, was frequently used by the respondents. This is applicable to Doh (2001) and Ward and Lee
(2000) who have stated that by relying on brands online the search cost can be lowered. The respondents stated that brands, as a shortcut, were particularly important when they were searching for more expensive and more technical products, due to the high risk involved. The brand could lower this risk because it was perceived to be safer, but also because they had an idea about it already in their head. This can be compared to what Arens (1996) and Peter and Donnelly, Jr. (2000) have stated about brands. In addition, the few respondents that searched for information about low-value products only utilized shopbot because they could find all the information in one place.

In general, the respondents said that they relied on the same shopping bots or Web sites for product information because they were familiar with them. They just went straight to them every time. This is somewhat similar to what Mandrick (1996) and Peter and Olson (1993) have said about choice heuristics. Finally, Maity et al. (2002) have stated that consumers are more likely to reuse the same Web sites, with which they have positive experiences, which can be compared to what was stated by the respondents.

5.4.2 Cross-Case Analysis
When discussing the shortcuts or heuristics consumers might use when searching online, many similarities were found, as can be seen in Table 5.6 below. There were also some minor dissimilarities, which are further discussed in the text following the table.

Table 5.6 Shortcuts Utilized when Searching Online

<table>
<thead>
<tr>
<th>Variable/Case</th>
<th>European Group</th>
<th>North American Group</th>
<th>Asian Group</th>
</tr>
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<tbody>
<tr>
<td>Search Heuristics</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- Online Search Tools</td>
<td>Were Utilized</td>
<td>Were Utilized</td>
<td>Were Utilized</td>
</tr>
<tr>
<td>- Brands</td>
<td>Were Utilized</td>
<td>Were Utilized</td>
<td>Were Utilized</td>
</tr>
<tr>
<td>Choice Heuristics</td>
<td>Were Utilized</td>
<td>Were Utilized</td>
<td>Were Utilized</td>
</tr>
</tbody>
</table>

Source: Authors’ own construction (2003)

The respondents in the three cases all said that they adopted shortcuts to simplify their search online. The type of heuristic and more specifically search heuristic, used by all of the groups, when searching for low-value and less complex products, were the shopping bots. They found it to be an easy online search tool for comparing many products at the same time. Even though they all used shopping bots as a shortcut, the European and the North American group were the ones who utilized them the most, but the Asian group were using them more and more.

Brand was another search heuristic used by the respondents in all of the groups and particularly by the participants in the Asian group. For them, brands were of especially great importance when more expensive and technical products were sought for, as it provided them with a certain feeling of security. The European and the North American groups did not rely on brand names as much as the Asian group.

Regarding choice heuristics, the groups all had search tools that they used over and over again when searching for product information online. This is since they have had positive experiences with those tools and knew how to use them. Moreover, these tools were already in the minds of the consumers and did not have to be searched for.
6. Findings and Conclusions

In the previous chapter the empirical data gathered from the three case studies were analyzed. In this final chapter, the research questions posed in the first chapter will be answered by presenting the findings of this study. Thereafter, some general conclusions regarding each research question will be posed. Finally, implications for further research will be suggested.

6.1 How Can the Factors Influencing Search Activity Online Be Described?

The findings of this study suggest that there are many different factors that influence consumers search activity online. To begin with, the different types of decision-making involved with a purchase have a significant influence on search activity. More specifically, it can be concluded that the most extensive information search is conducted for products requiring extensive decision-making, which are complex and more expensive products. These types of products are referred to as specialty goods and are often perceived to be of high importance. On the other hand, products requiring more limited decision-making are searched for to a lesser extent since they are not perceived as important. These types of products can be referred to as shopping goods and are perceived to be less complex and associated with a lower expense. An interesting finding is that the Asians in this study, in comparison with the Europeans and the North Americans, only search for these types of products to a very limited extent online because they find it easier to visit the physical stores. It should also be noted that the type of information sought online, for these types of products, is mostly associated with price. It was also detected that products requiring routine decision-making, such as convenience goods, are not sought out online. This is due to the fact that, information for these types of products are more easily obtained in the real world and are usually purchased on routine. Finally, the difference in search activity might be due to the fact that products requiring more extensive decision-making are usually associated with a higher perceived risk and because more information is available for these types of products online.

The number of alternative information sources available online seems to be a minor influence on the search activity undertaken. This factor is not recognized by the respondents, even though their actions indicate that they are in fact affected by it. This may result from the respondents’ experience working within the Internet environment. Thus, they have come to see the amount of information as a part of the Internet, rather than a factor influencing their search activity.

The findings reveal that the perceived risk, or rather the risk of receiving inaccurate information, has a significant influence on search activity online. As a result, search activity is increase, as the information has to be double-checked to validate its reliability. It should be noted that the North Americans in this study did not consider the risk of inaccurate information to be an influence on their search activity; it was rather their actions that indicated this. A reason for this difference between perception and behavior might be that the North Americans, with their advantages in English skills, could more easily determine the content on many Web sites given that the main language on the Internet is English. On the contrary, the Europeans and the Asians in this study were very risk conscious, which may also be explained by language differences. The findings also indicate that the Europeans and the North Americans perceived that the Web is more accurate than sales people in the physical stores, whereas the Asian group felt the opposite. The reason for this might be found in the relatively low Internet experience in the Asian group. However, it may also be a consequence of deeply rooted cultural differences, which should be investigated in further studies.
Findings and Conclusions

Internet experience has been found to have a positive influence on search activity online. That is, the more experienced the users become, the more capable they are of using search functions, and they in turn search more. The searchers also become more efficient at searching for product information with time, because they learn how to effectively use the tools and the functions available. The findings also identified some indications that there was no relationship between Internet experience and the amount of search conducted. However, these indications were only minor and need to be further investigated.

The findings indicate that “cost of search” has an influence on the online search activity. However, regarding financial cost, the opinions differ significantly between the three cases. The European and North American groups do not feel that financial cost has any influence on search activity. This is due to the fact that the cost associated with utilizing the Internet is fairly low in both cases. The Asian group, on the other hand, had different opinions within the group regarding this factor. Half of the participants had high Internet expenses, which in turn reduced their search, as the information found did not compensate the cost of receiving it. Therefore, they considered the financial cost to have a significant influence. The other half did not see financial cost as an influencing factor since they had lower Internet expenses. Hence, the reason behind this difference of opinions is the high financial cost associated with Internet usage for some participants. In turn, the fluctuating expenses between the cases may be due to the fact that some areas of the world have not had access to the Internet as long as others and therefore, have higher charges. However, this is outside the purpose of this study and was not further investigated.

Time cost, on the other hand, is something that has an influence in all of the cases. More specifically, the low time cost associated with searching online, compared to the real world, increase search activity. This is keeping in mind that, the Internet search can be conducted in the comfort of one’s own home. In addition, the Asian group also associated time cost with technological capabilities. That is, slow connections reduced search, while fast connections increased it. The reason why this relationship between time and technology was discussed by the Asian group, may be due to the fact that, Internet connections varied tremendously both within and between the home countries of the participants in this group. Finally, it can be determined that time is the most significant cost factor associated with search.

It was also detected that many of the respondents merely used the Internet for information search and then went out into the real world to make a purchase. They found the Internet too unreliable for them to leave out any credit card information. However, this is beyond the scope of the study and therefore needs further investigation.

Broadly speaking, the findings discovered for this research question also imply that the efforts going into the search activity online are somewhat influenced by the same factors as in the physical world. In addition, the Internet itself has functioned as an influencing factor and has increased product information search in general. Furthermore, when comparing the three cases it can be determined that cultural differences are apparent; however, their significance on the factors influencing search activity online is limited.

With the basis of the analysis and the findings for research question one, the following specific conclusions have been detected.

- Type of product has a significant influence on how much search activity is conducted online.
• Complex and high-value products are the types of products associated with the most extensive information search online.

• The type of online information sought for on low-value and uncomplicated products are mostly related to price.

• Accuracy of information is a strong influencing factor on the amount of search undertaken on the Web.

• Internet experience has a positive effect on search activity on the Web.

• Regarding cost of search, time cost is the most influencing factor for online information searching.

6.2 How Can the Preferred Search Tools for Product Information Search Online Be Described?
To begin with, consumers are aware of many different search tools and utilize almost all of them. The findings of this study indicate that the two most utilized search tools are search engines and browsers. This might be due to the fact that these tools are the ones that have been around the longest and, therefore, the searchers have greater knowledge of their functions and can effectively utilize them. More specifically, the browser was popular because of its ease of use and quickness of finding information the searcher already knew exited. This tool is mostly used by typing in the URL address. Search engines are popular because they can collect different types of information from all over the Web and bring it back to the information seeker. This tool was perceived especially useful, by the European and the North American groups, when they were not clear on what product information they were searching for. Hence, search engines are a good way of receiving a broad range of information. The findings of this study also show that advance search functions are very rarely used when searching for product information. This is attributed to a perception that they were too complex, by the European and the Asian groups. The North American group, on the other hand, felt that it did not bring back more specific information than was provided through more simple search functions. An additional interesting discovery is that Google, with its simple and easy design, is the most preferred search engine online.

One remarkable finding is that the Europeans and the Asians fairly frequently use Web directories, whereas the North Americans hardly ever use them. A reason for this difference may be that North Americans do not need search tools that narrow down the search for them since their English skills make it easier for them to scan and understand the information found. This is with consideration that most of the product information provided on the Internet is in English. The other groups do not have English as a primary language and, therefore, might need tools like Web directories that can reduce the information for them. Newsgroups are not used by the North Americans, and hardly ever by the Europeans, since they find them slow, out of date, and basically a waste of time. The Asian group on the other hand, found this tool to be somewhat useful for finding product information. This may be a result of their need to verify information retrieved from the Internet. Again, this may also be culturally related. Shopping bots are increasingly used. Even though they were not currently used to a great extent, they were perceived very beneficial. The reason for this appeared to be that it is a fairly new type of search tool, which people are not yet aware of. Another new search tool with increasing popularity is the review forum. The reason for its popularity is that
Findings and Conclusions

it provides a chance for product information seekers to read reviews for products, written by ordinary consumers, and are therefore, perceived to be a fairly unbiased source of information.

Consumers do not search for different search tools, but are instead referred to them through word-of-mouth. This is a result of the many different types of search tools available and the fact that consumer simply cannot try them all. Therefore, word-of-mouth becomes very influential in detecting new search tools.

The findings of this study also indicate that the preferred search tool depends on pre-product knowledge and type of product for which the information is being sought. However, in general, the types of methods utilized are, again, browsers and search engines. In addition, one interesting finding regarding these methods is that the Asians do not type in the product name in a search engine, but rather want a brand preference first, in order to limit an extensive amount of results. This difference may be a result of the Asians high financial cost of search, but also due to the fact that they are not habitual browsers like the Europeans and the North Americans.

With the basis of the analysis and the findings for research question two, the following specific conclusions have been deduced.

• Search engines and browsers are among the most popular search tools on the Web.
• Many product information seekers are using a new type of search tool, namely the review forum.
• Newsgroups are not utilized much for product information search online.
• Word-of-mouth has an important influence on the search tools utilized.

6.3 How Can the Problems Associated With Product Information Search Online Be Described?

The problems consumers face when searching for product information online mainly have do with search engines. This may be a result of the fact that search engines are among the most used search tool on the Web. More specifically, the problems associated with product information search can be divided into four categories; searching difficulties, retrieval issues, document discrimination problems, and interface design quandaries. To begin with, a significant difference between the cases was discovered regarding searching difficulties. The Asian and the European groups both had problems specifying their search query, but also with disambiguating words. More specifically, this problem was associated with the fact that they could not specify what they wanted the search tool to find information about. The North Americans, on the other hand, did not have any searching difficulties. This might be due to the fact that, when searching for product information online, much of the information is often written in English, which in turn is the primary language, needed for search queries. As English is not the primary language for the Europeans and the Asians, searching becomes more difficult for them when compared to the North Americans.

Retrieval issue is a more significant problem associated with product information search. More specifically, it is the irrelevant results brought back by search tools that are the problem. The problem is related to broken links, links that only contain part of the search query, or
Findings and Conclusions

simply scattered search queries. However, the North American group only considered this to be a minor problem. This may again be a result of the advantage of having English as a primary language, which allows them to more easily scan through the results.

Another significant difference between the cases was found regarding document discrimination problems. The European and the Asian groups felt that the problem with an overload of results was troublesome in the information seeking process. The North American group, on the other hand, did not see it as a problem since they easily could scan through the results. The differences may also be a result of the capabilities of making the search queries specific enough in order to receive a limited amount of results.

Search tools, with interface design quandaries, are also perceived as a problem, but not a significant one, since they are easy to overcome by just switching tools. The most common problem exists with search tools that are too cluttered and display too much advertising. A good design, as described by the respondents, is associated with a clean and easy-to-use layout. The more specific problem is related to the design of advance search functions. These are perceived to be too complex and hard to understand.

With the basis of the analysis and the findings for research question three, the following specific conclusions have been identified.

- The most significant problem online has to do with the many irrelevant links brought back by search tools in the result lists.
- Many of the problems related to product information search online, are a result of English being the primary language for many product information providers.
- Language barriers increase the problem associated with product information search online.

6.4 How Can the Shortcuts Utilized for Product Information Search Online Be Described?

Information seekers online, utilize shortcuts in order to reduce the amount of information searched. These search heuristics are simple procedures or rules used by consumers when they are not able to process all the information available. These shortcuts can take a few different forms. More specifically, one type of shortcut used when searching online is the search tool, shopping bot. The reason for shopping bots being a shortcut is that they provide information and comparisons of many different products in one place. Hence, the consumer’s search effort is reduced because he/she does not have to search the entire Web. Shopping bots are especially used as shortcuts when the product sought for is of low-value and less complex, as the perceived importance of these products is lower.

Brands are another search heuristic utilized online. Consumers tend to rely on brands because they withhold a certain degree of security, but also a promise of good quality. Brands are perceived as especially important by the Asians when the products sought for are more expensive and technical, because they feel a need to reduce the risk associated with them.

The findings of this study also indicate that habitual heuristics are used when searching for product information online. This mental shortcut occurs when the consumer utilizes the same search tools repeatedly and does not search for alternatives. The search tools, used as
shortcuts, are those that the consumers have had previous positive experiences with and know how to use.

With the basis of the analysis and findings for research question four, the following specific conclusions can be drawn.

- Shopping bots can be seen as a heuristic online.
- Brands are utilized as shortcuts online, because they withhold a certain degree of security.

6.5 Implications for Practitioners

The implication for practitioners can be seen as advice to companies involved with e-commerce targeted towards consumers and creators of search tools. The following implications are based on the empirical data, analysis, and conclusions conducted during this study.

To begin with, the different factors influencing products search activity should be taken in to consideration when promoting a product on the Web. More specifically, the issue of information accuracy is of great importance. Companies should take measures to present information in a way that is perceived “safe” by the consumer, for example, by using a security mark.

Regarding search tools, companies should make sure to promote their brand or company offline since URL addresses a remembered and utilized frequently by the consumers. The actual products should also be included on shopping bots and such, because they are increasingly being used by consumers. These tools are also being used as shortcuts and therefore the likeliness of consumers finding the product is increased if it is posted here because the consumers rarely search other sources. In addition, it should be kept in mind that products reviewed on review forums have a tendency to reach many consumers.

Search tool creators should also be sure to try to reduce the number of problems perceived by consumers. This is since it has been found that consumers simply do not use search tools that are too problematic in their opinion.

6.6 Implications for Theory

The purpose of the study has been to explore and describe a phenomenon within a specific research area. The aim has been to increase the understanding of this phenomenon by answering the research questions connected to how consumers search for product information online. This study’s contribution to theory regarded applying existing theories concerning consumer information search and verifying their validity. More specifically, for research question one it was detected that many of the traditional theories agreed, to a relatively large extent, with the empirical findings of this study. In addition, the traditional models regarding knowledge and experience on p. 26-27 were modified in order to make them more relevant to the Internet. Out of these three models, the positive relationship was found to be the most applicable for this study.

Regarding research question two, the majority of the findings for this study supported the existing theories. However, an additional search tool was also detected in the three focus groups conducted for this study, which was not mentioned in any of the previous literature. This new search tool is referred to as review forums. For research question three the existing
theories were found applicable and were further developed during the course of this study. Finally, for research question four, the traditional theories were applied to the Internet environment and still found valid. It should also be added that by increasing the understanding of consumer information search online, contributions have been made to the previous studies.

6.7 Implications for Further Research
During this research, areas that are not within the scope of this study have been uncovered. As many of them are interesting propositions for other researchers they have been included as implications for further research.

- Culture appears to affect consumers in their search activity online. An area for research could be to gain a better understanding of how and why search activity differs between cultures.

- The relationship between information search and Internet experience could be studied, in order to see if the search activity changes when Internet experience is even more increased.

- The issue of the perceived security in purchase situations on the Internet would benefit from further investigation in order to discover the true feelings and fears of consumers.

- The search tools could be studied with the aim to see how to make them more user-friendly.

- There were several different problems detected in this study. These problems could be viewed with the purpose to see how to resolve them.

- The research questions posed for this thesis could be quantified, with the purpose of examining whether the results could be generalized, or not.

- Consumers search behavior appears to be very similar online and offline, which would also make for several different interesting research topics, as different angles can be taken.
List of References


List of References


List of References


List of References


Appendix 1

Interview Guide

What reasons might affect the search activity/amount of search that you conduct on the Internet?
- Does the type of product that you are going to purchase affect it? Why?
- (Number of alternatives) Does the amount of product information online affect your search activity? Why?
- Do you feel that there are risks involved with searching for product information online or about the accuracy of information found? Why?
- How has your search behaviour changed over times? Do you search more or less now compared when you just started using the Internet? Why?
- Do you feel that there is a high cost in terms of time and money involved in searching online? Does it affect the amount of search conducted? Explain?

Is there anything you would like to add on this topic?

What search tools do you use online?
- Browsers, search engines, web directories, portals, newsgroups and shopping bots.
- Which kind of search tool do you use the most and why?
- You are about to purchase a product. How do you search for product information online? Explain.

Is there anything you would like to add on this topic?

What problems do you face when searching online?
- Do you see a problem in the way that search tools understand your query/question or what you are looking for?
- Do you see a problem in the amount of results that the search tools give you?
- Do you see a problem in the relevancy of the results?
- Do you see a problem in the design of the search tools?

Is there anything you would like to add on this topic?

Do you have any (mental) shortcuts that you use when searching online?
- Do you do something to simplify the search process online?
- Do you use any online search tools as shortcuts? Explain.
- Do you rely on brands as shortcuts? Explain.

Is there anything you would like to add on this topic?
Questionnaire

1. Male  Female

2. Age:_________

3. Country:_______________

4. How long ago did you start using the Internet on a regular basis?

( ) < 6 months ago
( ) 1-2 years ago
( ) 2-3 years ago
( ) 3-4 years ago
( ) > 5 years ago

5. How often do you use the Internet?

( ) several times per day
( ) once per day
( ) a couple of times per week
( ) a couple of times per month
( ) a few times per year
( ) other:_______________

6. What kind of search tools do you use the most when searching for information about products on the Internet? Rank in order, with 1 being your mostly used tool.

( ) Browser (e.g. direct address)
( ) Search Engines
( ) Web Directories
( ) Newsgroups
( ) Shopping Bots (Are tools where the user can type in a keyword or product type and the shopping bot brings back results from several merchants. It is usually possible to compare the products on different criteria, e.g. MySimon)
( ) Other:__________________

7. Does your search tool return results that seem to be off-base or totally unrelated to what you are seeking?

( ) Frequently
( ) Somewhat
( ) No
( ) Cannot remember
8. How many result links are you usually willing to investigate?

(  ) 1-2 links
(  ) 3-10 links
(  ) 11-20 links
(  ) 21-50 links
(  ) 51-100 links
(  ) > 100 links

9. Draw a line, showing your development, in how much you search online, overtime (low Internet experience is when you first started using the Internet and high is where you consider yourself to be today).