

## Factors affecting consumer use of the internet for information search

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**FACTORS AFFECTING CONSUMER USE OF THE INTERNET FOR  
INFORMATION SEARCH**

**by**

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## **Abstract**

The Internet opens new opportunities for conducting pre-purchase information search. Lower search costs have been found to affect use of the Internet for this purpose. Benefits in terms of the large amounts of information available and freedom from physical contact to sales staff have also been found to affect the use of the Internet for information search positively. In this paper, low costs and benefits are put together in a model. The model was tested by means of structural equation modeling on a sample of Danish Internet users ( $n=233$ ). The main result is that the amount of Internet use affects use of the Internet for pre-purchase information search more than perceived low search costs and perceived availability of information. Further, the test of the model did not support that pleasure in shopping and a preference for personal contact to sales staff affect the use of the Internet for information search.

**Keywords:** Information Search, Consumer Behavior, Internet, Denmark

## **Factors Affecting Consumer Use of the Internet for Information Search**

### **1. Introduction**

Consumers search for information prior to making a purchase in order to handle the perceived risk involved in making the purchase decision (Bettman, 1973, Srinivasan and Ratchford, 1991). Economic theory states that consumers will search for information as long as their perceived benefit from doing so is larger than the cost involved (*e.g.* Bettman and Luce, 1998). The Internet provides a new opportunity for consumers to find product information, and research has shown that consumers actually use the Internet when searching for this type of information (Fallows, 2005; Peterson and Merino, 2003). Quite a large amount of research looking into consumer search behavior on the Internet has already been carried out. This research has primarily been conducted from one of two different perspectives or is purely theoretical. One group of researchers (*e.g.* Alba et al., 1997; Hoffman and Novak, 1996; Wolfinbarger and Gilly, 2001) focuses on benefits in using the Internet due to the large quantities of information available, entertainment while searching, and freedom from sales pressure and opening hours. Another group of researchers (*e.g.* Bakos, 1997; Bellman et al., 2006; Hoque and Lohse, 1999) focuses on changes in search behavior as a result of changes in search costs. Hoque and Lohse (1999) show that consumers tend to choose businesses that are listed first when using electronic directories and attribute this to the greater effort that is needed to search near the end of the listing. Bakos (1997) primarily focuses on savings in time and money because no physical transportation between information sources is needed. Bellman et al. (2006) elaborate on four different approaches to studying consumer behavior on the Internet. Three of these approaches are cost approaches while one approach is benefit oriented. Bellman et al. (2006) conclude by offering research propositions from the perspectives that they present. Also taking on a broader perspective, Peterson and Merino (2003) put forward 14 hypotheses regarding consumer

information search on the Internet. These hypotheses mainly propose how consumer search behavior on the Internet will change and do not consider which factors can be expected to facilitate this change. In addition, the hypotheses are not put to an empirical test.

Most research in this field thus either states a case that consumers will use the Internet for information search because of the benefits related to Internet information search or focuses on how the search process will change as a consequence of lower search costs on the Internet. Research putting the two perspectives together results in propositions that have not been put to a test among a sample of Internet users. Therefore, the research presented in the following extends the understanding of consumer use of the Internet for information search by putting the previous findings together in a model which describes to what extent the perception of cost and benefit factors involved in using the Internet for information search affects consumer use of the Internet for pre purchase information search. The model is tested on a sample of Internet users to validate the propositions made.

In the following, I first consider how a number of factors may affect use of the Internet for information search. The factors that would be expected to increase Internet use because they incur benefits are considered first. As can be seen from the above, these are the large quantities of information available, the opportunity to search for information at a low cost, and changes in search behavior that can be related to the fun enjoyed when using the Internet per se. The factors that can be expected to reduce the use of the Internet for information search are also considered. These are the factors that are related to the impersonal characteristics of the Internet. Consumers may prefer to go on shopping sprees with friends and have personal contact to sales staff. In addition, the problems in finding credible information are considered. The consideration of how the factors affect the use of the Internet for information search results in the proposition of a model. After having presented the model, I describe the methodology used for testing it. Next, I present the results. Finally, I compare the results from this study with the

propositions made by other researchers, and discuss the limitations and the implications of the results.

## **2. Factors That Can Be Expected to Affect Information Search on the Internet**

There is no doubt that much information is available on the Internet and that the cost incurred by searching for information on the Internet is low. There may, however, be differences from one consumer to the next with respect to what extent they find the information on the Internet usable. Also, there may be differences concerning to what extent they find that the information needed can be found at a low cost. In the following, we shall look further into why I expect some perceptions and characteristics to raise, and others to reduce the use of the Internet for pre-purchase information search.

Several researchers have pointed out that perceived *low search costs* can be expected to increase the use of the Internet for information search (Bakos, 1997; Hoque and Lohse, 1999; Peterson and Merino, 2003). It is, however, not enough that search costs are low. They also have to be perceived as low by the individual consumer. In addition, such a perception may not influence actual use of the Internet for this purpose. Further, the large quantity of information available on the Internet is often not adequately organized for consumer search (Alba et al. 1997) and consequently, it can be difficult for consumers to find the information they seek. Some consumers may, therefore, not search the Internet for information because the *perceived availability of the information* needed is low.

Higher levels of subjective *product knowledge* can be expected to lead to a higher level of perception that the information needed is available on the Internet. On the Internet, it is particularly important that consumers feel confident that they are able to judge the information. For example, Raman (1997) found that many consumers do not visit commercial web pages because they believe that the information given on such pages is biased. According to Moorthy,

Ratchford and Talukdar (1997), more knowledge heightens the ability to select and process information retrieved. In addition, high levels of product knowledge reduce the time needed for searching as the search becomes more efficient (Bruks, 1985). Thus, consumers possessing a high level of product knowledge will feel better equipped to select between the vast quantities of information available on the Internet. In addition, consumers who feel that the Internet is important to them may be more confident that usable information is available to them, as they are skilled in finding information on the Internet (Novak, Hoffman and Yung (2000).

Some of the costs incurred from using the Internet for information search stem from consumers switching from the behavior they have been socialized into to a new way of searching for information. Rogers (1995) describes how adoption of new products and behaviors becomes easier if these products and behaviors have a relative advantage, are compatible with existing values and experiences, have low complexity, can be tried on a limited basis, and rate high on communicability. For consumers who enjoy and are used to shopping from home, information search on the Internet is compatible with their shopping mode. Such *in-home shoppers* may find information search on the Internet less complicated because they are used to relying on non-personal information and prefer to conduct their search from home. Therefore, the inclination to shop from home can be expected to affect perceived search costs in a positive way.

One of the characteristics of the Internet is the lack of physical *contact with sales staff* while searching for information (Bauer et al., 2002). Lack of physical contact with sales staff is perceived by some consumers as a benefit (Maher, Marks and Grimm, 1997; Wolfinbarger and Gilly, 2001) whereas other consumers like to have contact with sales personnel (Lumpkin and Hawes, 1984), and thus it might be expected that they would miss this contact when searching on the Internet. These differences can be expected to affect the use of the Internet for information search. Along the same line, searching for information on the Internet is not a social event like traditional shopping can be for some shoppers. Some consumers consider

shopping and information search off-line as part of, or an excuse for, shopping (Lavik, 1984; Stone, 1954). These consumers consider information search off-line a positive activity because it gives them an opportunity to leave home and socialize with others (Lavik, 1984; Miller et al., 1998). The Internet is not able to provide the same social ‘side-effects’ of information search, and consequently, *enjoyment in shopping* is expected to have a negative impact on the use of the Internet for information search.

The benefit achieved from information search is broader than just finding the product information needed. Some researchers (e.g. Bloch, Ridgway, and Sherrell, 1986; Chaudhuri, 2000) argue that *interest in the product* itself can provide benefit from information search. The flexibility of the Internet in terms of freedom from boundaries in time and space allows consumers a much wider array of opportunities for information search related to their interest, and therefore, a higher level of interest in the product may result in an increased use of the Internet for information search regardless of use of the Internet in general. The same researchers have shown that there is a positive relationship between product interest and product knowledge.

Research emphasizing the benefits of using the Internet claims that benefits in information search using the Internet may be in the form of either benefits in terms of availability of information on the Internet or in benefits of using the Internet itself. Novak, Hoffmann and Yung (2000) show that such benefits of using the Internet are closely related to the *importance of the Internet* in a person’s life. We would thus expect people to whom the Internet is important to use the Internet more for information search. In addition, based on Novak, Hoffman and Yung (2000) and Nie and Ebring (2000), there is reason to expect that dedicated Internet users have *used the Internet longer* and that dedicated Internet users use the Internet more than other Internet users. Based on the same sources and Statistics Denmark (2002), the importance of the Internet in a person’s life can be expected to diminish with increasing *age*.



Based on the above, I am now ready to propose a model that explains the extent of consumer use of the Internet for information search. This model is presented in Figure 1. As shown in this figure, I propose that use of the Internet for pre-purchase information search is more extensive if the perceived cost of using the Internet for information search is low; if the expected benefits are high; and if the consumer does not like to go shopping and/or to have personal contact with sales staff. Use of the Internet for information search is more consistent with prior shopping behavior for individuals who are used to and like shopping from home (in-home shoppers). Therefore, the inclination for home-shopping is expected to lower perceived search costs.

There are two types of benefit involved in using the Internet for information search. One type is related to the interest in using the Internet per se. This is captured by the variable 'Importance of Internet'. Importance of the Internet in a person's life is affected by socialization, for which age is a proxy variable, and experience in Internet use. Dedicated Internet users are more skilled in navigating the Internet, and therefore we can expect that they have a more positive perception of the availability of the information needed on the Internet. The second type of benefit stems from the possibility that the Internet offers to search for specialized information about products whenever the consumer feels like it. This benefit is larger for consumers that have a special interest in a product. And therefore, interest in a product is expected to affect use of the Internet for pre-purchase information search positively. I also expect interest in a product to result in a higher level of product knowledge.

### **3. Research Method**

#### *3.1 Sample and Procedure*

The aim was to test the proposed model on a representative sample of Danish Internet users. As there is no list of Danish Internet users, a three-stage process was employed.

Cities were first selected randomly from a list of postcodes, and subsequently subjects were selected randomly from the Danish telephone register based on the initial letter of their first name. The number of individuals selected in each city was proportional to the number of inhabitants. In total, 1673 households were selected by means of this two-stage approach. The third and final stage involved screening for Internet access by telephone and obtaining e-mail addresses from selected individuals who volunteered to participate in the survey. At least three attempts to reach each household during April and May 2002 resulted in contact with 1325 people. Of these 1325 people, 688 individuals (51.92%) had Internet access and also used the Internet, and 407 (59.16%) of those 688 individuals agreed to participate in the survey and were sent an e-mail containing a link to an electronic questionnaire placed on the Internet. This resulted in 251 usable questionnaires (a response rate of 62.19% of e-mails sent). The response rate calculated on the basis of the 688 respondents from the original sample meeting the screening criteria is 36.48%. Due to missing values, eighteen respondents were excluded from the sample, and finally, 233 respondents were used in the test of the Internet Search Model.

The demographic and socioeconomic profile of the sample is displayed in table 1 along with results of goodness-of-fit tests for the representativeness of the sample. The sample is not representative for Danish Internet users but is skewed towards families with high incomes and persons with a high level of education. Furthermore, Internet users who have had access for more than three years are underrepresented in the sample while users having had access for one to three years are overrepresented. In terms of age, geographic dispersion, and sex, the sample is representative for Danish Internet users. The lack of representativeness implicates that it is problematic to infer from this sample to Danish Internet users as such. However, the sample is representative for Danish Internet users for several important variables. In particular, the sample is representative across age and includes both experienced and less experienced Internet users,

and it is thus usable for testing for differences in use that can be attributed to differences in these variables.

### 3.2 Measures

In the following, the scales that were used to measure the variables in the Internet Search Model are presented. The items for each variable are displayed in table 2. The resulting questionnaire was tested and revised following pilot tests that were conducted on two different samples: First a sample of staff at the University of Southern Denmark, and subsequently another sample of students participating in a marketing research course. The scales were revised based on the results of these tests. The samples were not large enough to perform quantitative analysis of the scales.

*Framing the decision situation.* Each purchase decision is different. Therefore, asking for pre-purchase search “in general” is too broad for the present purpose. Accordingly, I framed the purchase situation by asking the respondents to answer the questionnaire based on a specific buying process that they had been through recently. To ensure that the respondents would select a process that involved extensive problem solving, they were asked to choose from a list containing the following products: A holiday trip, a vacuum cleaner, a computer/an upgrade, refurbishing materials, a mobile phone, white goods, a music centre, and an “other” option. The span of products was selected on the basis of Jensen (1990), observations on the Internet, and an attempt to include products that are different from each other in terms of where and how consumers buy them, and how ‘natural’ it would feel to them to search the Internet for information about the product. The selection was tested in the pilot testing of the questionnaire.

*Use of the Internet for information search.* Two measures were used for this variable – an overall measure and a measure based on a summation of use of each of a range of possible Internet sources standardized to the same mean as the general measure. If consumers are

consistent in their answers, the correlation between the two ways of measuring use of the Internet for information search should be high. The overall measure for use of the Internet for information search was determined on a relative basis. In favor of measuring relative use of the Internet for information search speaks that to consumers, it is probably easier to estimate to what extent they used online sources compared to off-line sources than to estimate the amount of time spent searching on the Internet. Respondents were asked to state whether they had used each source on the Internet on a scale ranging from much (5) to a little (1) or not at all (0). This way of measuring may be problematic because “much” may not signify the same to different consumers. However, after careful consideration and testing of alternative measures, this appeared to be the best way after all. One of the alternatives I tried was using a constant-sum scale. However, this turned out to be too complicated, even for students taking a marketing research course.

*Product knowledge* was measured by a scale developed by Bloch, Ridgway and Sherrell (1989). This scale measures subjective knowledge. Objective knowledge has also been shown to have an impact on the amount of information search (Bruks, 1985; Raju, Lonial, and Mangold, 1995). In this study, however, focus is not on the amount of search, but rather on the perception that the Internet will be useful for this search. Therefore, a measure based on perceived – that is subjective – knowledge was considered appropriate.

*Interest in the product.* To keep the questionnaire simple to the respondents, this variable was measured on a scale analogous to the one used for measuring product knowledge.

*Importance of the Internet.* Novak, Hoffman and Yung (2000) used a five-item scale for measuring the importance of the Internet in the individual’s life. The same scale was used at first in this study. However, the pilot test showed that three of the scale items (matters/means/of concern) were perceived as being too close to each other when translated into Danish and also as being too personal for a “thing” like the Internet. Based on the comments in the pilot studies, I developed a modified version of the scale containing three items. In addition

to this, I measured how much 'space' the Internet actually takes up in the person's life by measuring the amount of Internet use as the amount of time spent on the Internet per week.

*Availability of information.* To measure to what extent the respondent expects that the information needed is available on the Internet, it was necessary to first establish what type of information the consumer would need. Prior to decision-making, the consumer seeks information on product features, prices, and - depending on the consumer's personality, knowledge about, and interest in the product - also comparison of brands (objective features) and/or advice (subjective evaluation). (Bettman, 1979; Chaudhuri 2000; and Srinivasan and Ratchford, 1991). Based on this, I developed four items. The items take into account that the information has to be considered useful in product choice.

*Perceived cost of search using the Internet.* Based on Punj and Staelin (1983), Moorthy, Ratchford and Talukdar (1997) elaborate on determinants of amount of information search. Moorthy, Ratchford and Talukdar define two types of cost incurred from information search: Time and effort. Punj and Staelin, however, also point out monetary cost as being important, and, as a result, I decided to include an item for this type of cost. Moorthy, Ratchford and Talukdar further point out that the various cost elements may not be equally important to consumers, which makes them choose to weight each cost element by its importance to the consumer. The same approach was used in this study.

*Shopping enjoyment.* According to the Internet Search Model, enjoyment in shopping sprees as social events has a negative impact on use of the Internet for information search. Therefore, it was important to use a scale that measured enjoyment in shopping which covered the social element of shopping. Lumpkin's (1985) scale for 'Shopping Enjoyment' covers, in 9 items, both interest in shopping per se and social aspects involved in shopping. It was an issue of some concern that the scale consists of 9 items, which is quite a large number. Bruner and Hensel (1992) point out that two of the items relate to innovativeness in shopping.

Therefore, Lumpkin's scale, excluding these two items, was used to measure shopping enjoyment.

*Contact with sales staff.* The 'Personalized Shopper' scale developed by Lumpkin and Hawes (1984) takes into account the importance placed on contact with retail staff. The scale was developed to measure interest in shopping in stores that the consumer is familiar with. This is not the object of the present study. However, the questions cover interest in having personal contact with sales staff and, therefore, the scale was deemed usable.

*In-Home shopper.* Hawes and Lumpkin's (1984) 7-item scale was used to measure this variable. For some of the items, the selection mail/phone was used. These options were replaced by 'From home', and an introductory text was added to explain that this section dealt with the attitude to do shopping from home via telephone, catalogue or Internet.

*Time used Internet* was measured using time brackets employed by Novak, Hoffman and Yung (2000).

*Background Variables.* These variables relate mostly to control for representativeness. The variables were: Gender, age, income, postcode, number of children, and marital status.

### 3.3 Preparing the Data Set

Before the model was tested, the measurement scales were evaluated and purified. Initially, all variables were tested for deviations from the normal distribution by looking at skewness and normal probability plots. Variables with skewness values numerically lower than 1 and preferably in the same direction are considered appropriate (Byrne, 2001:71). The items that were omitted due to skewness are marked with an \* in table 2. Next, the measures were tested for unidimensionality by confirmatory factor analysis as described in Byrne (2001: 107). According

to Byrne (2001:104), a large modification index (4 or greater (Bagozzi and Yi, 1988; Hair et al. 2006:797)) indicates cross-loading in the presence of which the measures are not unidimensional.

Based on this evaluation criterion, the items that loaded on more than one latent variable were removed from the data set (indicated in table 2 by \*\*). Measurement of 'Importance of the Internet' posed problems. Two of the items ('The internet is/is not exciting' and 'Use of the Internet is relevant/not relevant') crossloaded heavily on other latent constructs. Therefore, alternative ways of measuring this construct was tried out (A combination of 'The Internet is important/not important to me' and Amount of Internet use, and the two variables separately). The combination had a low Alpha (0.55) and was ruled out on this basis. In addition, 'The Internet is important/not important to me' correlated with 'Perceived cost'. Therefore, the construct 'Importance of Internet' was removed from the model and replaced by 'Amount of use', which does not measure attitude towards Internet but the space that the Internet takes up in the person's life.

Finally, the measurement scales were evaluated based on Cronbach's Alpha. According to Bagozzi and Yi (1988), this measure should exceed 0.6 and preferably 0.7. Cronbach's Alphas for the variables are reported in table 2. All reliabilities are above 0.6 and are thus appropriate for use in structural equation modeling.

### *3.4 Data Analysis*

I tested the proposed model using AMOS 6.0 for structural equation modeling. After the above described cleaning of the data, the model parameters were estimated. Maximum Likelihood was chosen as the estimation method as recommended by Byrne (2001: 71). Results were evaluated as recommended by Byrne (2001), Bagozzi and Yi (1988), and Fan and Wang (1998). Accordingly, the model was revised based on theoretical considerations until most of the

modification index values were lower than 4, standardized residuals  $< 2$ ,  $p$ -value  $> 0.05$ , and RMSEA and GFI reached a satisfactory level (RMSEA $<0.05$ , GFI  $>0.9$ ).

#### 4. Results

Fit indices for the structural models that were tested are displayed in Table 3. As is shown in table 3, GFI and the  $p$ -value are not all at satisfactory levels. Inspection of the results revealed that the  $p$ -values for the paths from ‘Contact to sales staff’ and ‘Shopping enjoyment’ to ‘Use of the Internet for information search’ were quite high (0.37 and 0.64), indicating that these factors do not affect use of the Internet for information search. Consequently, ‘Contact to sales staff’ and ‘Shopping enjoyment’ were omitted from the model. Also the  $p$ -value for the path from ‘Product knowledge’ to ‘Availability of information’ was non-significant (0.14). Therefore, ‘Product knowledge’ was also omitted from the model. Fit indices for the test of the resulting model are displayed in Table 3 in the row labeled ‘1’. The fit indices have improved. However, RMSEA is only slightly smaller. The improvement can thus mainly be ascribed to the fewer variables in the model. In addition, the  $p$ -value still was not satisfactory. Inspection of the modification indices and standardized residuals showed that a path from ‘In-home shopping’ to ‘Perceived information availability’ would improve the fit of the model. It seems reasonable that inclination to shopping from home increases the belief that the needed information is available, and therefore, this path was added to the model. Fit indices for the resulting model are displayed in Table 3 in the row labeled ‘Final model’. The fit indices are now all at a very satisfactory level. The final model is displayed in Figure 2.

Together, differences in product interest, perception of (low) cost, and amount of Internet use explain 34% of the variation in use of the Internet for information search. Differences in perception of availability of information and inclination to shop from home together explain 38% of the variation in the perception of the size of the search costs. Finally,



differences in age and length of time the Internet has been used together explain 25% of the variation in the amount of Internet use. Differences in amount of Internet use have about the same effect on use of the Internet for information search as perceived cost. However, amount of Internet use also indirectly affects use of the Internet for information search through perceived availability of the needed information and perceived cost. Amount of using the Internet is thus important in two different ways. The levels of explanation are satisfactory but also show that there is still much more to be understood about the determinants of use of the Internet for information search.

If we compare figures 1 and 2, we see that the relationships in the model are to some extent as expected. There are, however, also important differences between the two models. Firstly, differences in shopping enjoyment and inclination to personal contact with the sales staff do not affect how much the Internet is used for pre-purchase search. Secondly, a higher level of product knowledge does not lead to a more positive perception of the availability of information on the Internet. Thirdly, inclination to in-home shopping does not only lead to a more positive perception of the costs involved in searching the Internet for pre-purchase information. It also leads to an increased belief that the needed information is available on the Internet. Finally, the concept ‘importance of the Internet’ – an attitude concept - has been replaced by ‘amount of use of the Internet’ – a measure of actual behavior. The factor that is most important for differences in use of the Internet for information search according to the findings in this study is thus not the attitude towards the importance of the Internet, but just how much the Internet is used. The two are not the same. However, they are probably, to some extent, positively related.

## **5. Limitations, Discussion, and Implications**

The findings of this study partly support propositions that have been put forward in previous research discussing or showing that low search costs and benefits related to using the

Internet for pre purchase information search are important factors affecting use of the Internet for this purpose. However, the results show that even though low search costs and availability of product information affect use of the Internet, the most important driver for the use of the Internet for pre purchase information search is the general change in behavior that is related to extended use of the Internet.

As regards the research presented in the beginning of this paper, the findings support Peterson and Merino (2003) in their proposition that there will be changes in search patterns due to Internet use. The results further support the statement by several researchers that low search costs drive the use of the Internet for pre purchase information search (Bakos, 1997; Bellman et al., 2006; Hoque and Lohse, 1999). However, search cost is not by far as strong a factor as the amount of Internet use. Similarly, the results support previous research (Alba et al., 1997; Hoffman and Novak, 1996; Wolfenbarger and Gilly, 2001) proposing that consumers will use the Internet for information search due to the large amounts of product information available on the Internet. However, perceived availability only affected use of the Internet for information search indirectly by lowering perceived search costs. And again, availability of information is a much weaker factor than amount of Internet use. Further, the results showed that people for whom the use of the Internet is compatible with their shopping mode use the Internet more for pre-purchase information search, and that amount of Internet use affects perceived availability of information. Another result was that interest in a product augments use of the Internet for pre-purchase search. This shows that individuals who are interested in a product are better able to benefit from the freedom from limitations in space and time and the large quantities of information available. The empirical material further gave strong support to background variables related to the amount of use of the Internet that were found by Novak, Hoffman, and Yung (2000). The longer a person has been on line, the more the Internet is used. This is, in part, offset by the person's age, as the older the person is, the less the Internet is used. This reflects

that experience counts in Internet use, but that lack of experience is offset by socialization into using computers.

Finally, the test of the model did not support the theory that shopping enjoyment and enjoyment in personal contact with sales personnel would affect the use of the Internet for pre-purchase information search negatively. Thus, the lack of physical social contact on the Internet does not prevent consumers enjoying to shop with friends from using the Internet. This finding does not lend support to the finding by Wolfinbarger and Gilly that one reason for searching for information on the Internet is the freedom from contact with sales staff. According to the results of this study, this factor does not influence use of the Internet for pre-purchase search.

There are some limitations to the study that need mentioning. Firstly, the Internet Search Model was tested on a sample of Internet users that was not representative of Danish Internet users but was skewed towards well-educated families with children. The conclusions regarding the relationships in the Internet Search Model, therefore, may not hold for Internet users belonging to the working class. However, the sample was representative for Danish Internet users in terms of distribution of age, sex, and geography. In addition, Internet users who have had access to the Internet less than three years are well represented in the sample, and the conclusion is therefore valid for such Internet users.

Another limitation is that the findings in this study may have been influenced by the framing of the buying process. The products that the respondents were asked to consider might not all have qualified as shopping items. A path to pursue in future research would, therefore, be to look into differences across products either by taking a sample that is sufficiently large to allow subgroup analysis or by making several studies, each covering a certain type of product. It might be of special interest to look more thoroughly into Internet browsing for products that are traditionally associated with shopping, such as clothes and other fashion items.

Testing of the model was limited by the size of the resulting sample as it was too small to conduct analyses on separate parts of the sample. For instance, it would have been interesting to conduct a test of the model on each of the different products in the questionnaire. Finally, there were measurement problems in this study which had to be solved by omitting problematic measures and by altering one of the constructs in the model. The construct 'Importance of Internet' had to be changed to 'Amount of use'. It seems that amount of use, which is a straight-forward measure of the place that the Internet takes up in a person's life, is more clearly related to use of the Internet for information search than the more subtle 'Importance of the Internet'. The explanation for this may be that respondents feel uneasy admitting that a thing like the Internet is important to them. It may be that they just think of the Internet as a practical device.

This study did not take into account that information search using the Internet may be more prevalent at some stages in the buying process than in other stages. For instance, consumers may visit Internet sites to get an overview of the market before visiting a retail store – or they may go to retail stores to get advice and then visit the Internet for information on prices. In future research, it would be interesting to pursue to how the Internet is used in different stages of the purchase decision process.

Research has not previously considered how differences across consumers in their perception of the costs of and the (additional) benefits from using the Internet for pre-purchase search affect how much they use the Internet for this purpose. In spite of the limitations, this study shows that the amount of use of the Internet is the main factor that affects use of the Internet for this purpose. Other factors affecting use of the Internet for information search are product interest and inclination to do in-home shopping. Both of these factors augment the consumer's ability to cope with the large amounts of information. An important implication of the findings is that, in future, we can expect extended use of the Internet for consumer

information search. This follows from the fact that more and more people will become experienced computer users and will have been socialized into using computers and the Internet for all kinds of purposes, and such consumers use the Internet more. This development is not hindered by the fact that some consumers find enjoyment in shopping with friends or in personal contact with sales staff.

To marketers, the findings in this study implicate that presence on the Internet is, indeed, important, as a growing number of people will look to the Internet for product information instead of using traditional information sources like print catalogues and visits to stores, regardless of whether they like to go to shops or not. Also, perceived availability of the needed information on the Internet affects the perceived cost of using the Internet for information search, and perceived cost affects the use of the Internet. It is, therefore, important for marketers not only to be present on the Internet but also to be present in such a way that consumers experience that they are able to find the information. Based on the findings, there seems to be a need for differentiated communication strategies on the Internet. The study showed that light users of the Internet tend to be less confident that the needed information is available on the Internet. In addition, people who are not inclined to do home-shopping find that search for information on the Internet is harder than do consumers who are inclined to do their shopping from home. Finally, consumers who are interested in a product use the Internet for information search to a larger extent than do other consumers. This implies that it is important to provide information that is tailored for this, more knowledgeable, segment.

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Variable	Distribution in Sample	Distribution for Danish Internet Users	<i>p</i> -value
<i>Age in years</i>			
16-19	5.24%	6.89%	0.06
20-39	40.61%	42.90%	
40-59	47.16%	39.43%	
60-79	6.99%	10.77%	
<i>Level of Education</i>			
9 years	9.96%	27.58%	<0.001
12 years	30.30%	45.87%	
More than 12 years	59.74%	26.55%	
<i>Geographic Dispersion</i>			
West Denmark	74.43%	71.43%	n.s.
East Denmark	25.57%	28.57%	
<i>Gender</i>			
Female	42.99%	49.43%	0.06
Male	57.01%	50.57%	
<i>Income, DKK/Year</i>			
-100,000	2.28%	5.53%	<0.01
100,000-400,000	34.70%	41.60%	
400,000+	63.01%	52.87%	
<i>Marital Status</i>			
Single, no children	12.45%	41.63%	<0.01
Couple, no children	36.05%	28.53%	
Single, children	2.15%	4.72%	
Couple, children	47.64%	24.48%	
Other	1.72%	0.63%	
<i>Internet Access</i>			
Less than 6 months	2.62%	4.00%	<0.001
6 months up to 1 year	3.05%		
1 year to 2 years	16.59%	10.67%	
2 year to 3 years	21.40%	16.00%	
3 years and more	56.33%	69.33%	

*Table 1: Demographic profile of sample*

<b>Variable</b>	<b>Items</b>	<b>Scale<sup>a</sup></b>	<b>Reliability<sup>b</sup></b>
<b>Use of the internet for information search</b>	How much time did you spend searching for information on the Internet compared to offline prior to making the purchase in question?	Little time....Much time	0.63
	How much time did you spend using Producer's websites Retail websites Search engines Websites dedicated to the product in question Official Consumer websites Organizational Consumer websites Newgroups Chat Other	Summated and standardized	
<b>Interest in the product</b>	How high is your interest in the type of product that you chose, in general?	Little interest...Large interest	0.76
	How extensive is your interest in the type of product that you chose, compared to your friends?		
<b>Knowledge about the product</b>	How large is your knowledge about the type of product that you chose, in general?	Little knowledge...Large Knowledge	0.86
	How large is your knowledge about the type of product that you chose, compared to your friends?		
<b>Importance of Internet in life</b>	Using the Internet is**	Not exciting...Exiting Not important to me...important to me Not relevant... Relevant	
<b>Amount of use</b>	How much time do you spend using the Internet pr. week?	Less than 1 hour...More than 40 hours (6 categories)	
<b>Availability of information</b>	There is much helpful information on the Internet	Completely disagree...completely agree	0.79
	It is easy to find information on the Internet		
<b>Perceived cost of using the Internet for information search</b>	There is good advice on products on the Internet	Completely agree...completely disagree	0.63
	There is good information on prices on the Internet		
	It is Cheaper/Easier/Less time consuming to seek for information on the Internet than other places		
	It is important to me that it is Cheap/Easy/Not time consuming to search for product information		
<b>Shopping enjoyment</b>	Shopping gives me a chance to get out and do something* *	Completely disagree...completely agree	0.73
	I like to go shopping with other people		
	Shopping is a topic of conversation*		
	I like to go to regional shopping centres* I often combine shopping with lunch or dinner at a restaurant		

	I get a psychological lift from shopping		
	I am interested in shopping		
<b>Contact to sales staff</b>	I like to shop where people know me	Completely disagree...completely agree	0.83
	I like to shop where clerks know my name		
	I try to get to know the clerks in the store where I shop		
<b>In-home shopper</b>	Shopping at home saves me time and effort	Completely disagree...completely agree	0.71
	Shopping from home is more convenient		
	I like to shop from home**		
	It is saves money to shop from home*		
	From home-shopping saves a lot of time		
	I shop from home because I can't find what I want at local stores		
	I love to browse through catalogues **		

<sup>a</sup> 5 categories unless something else is mentioned

<sup>b</sup> Final Cronbach's Alpha

\* Omitted prior to the test due to high degree of skewness and low reliability

\*\* Omitted in CFA

model

*Table 2: Items and reliabilities of the variables used in assessing the model*

<b>Model</b>	<b><math>\chi^2</math></b>	<b>df</b>	<b><i>p</i>-value</b>	<b>GFI</b>	<b>CFI</b>	<b>RMSEA</b>
Initial	426.920	288	0.000	0.884	0.918	0.046
1	145.426	113	0.022	0.933	0.963	0.035
Final	125.909	112	0.174	0.940	0.984	0.023

*Table 3.* Fit indices, Structural Models

Figure 1. Internet Search Model (ISM)

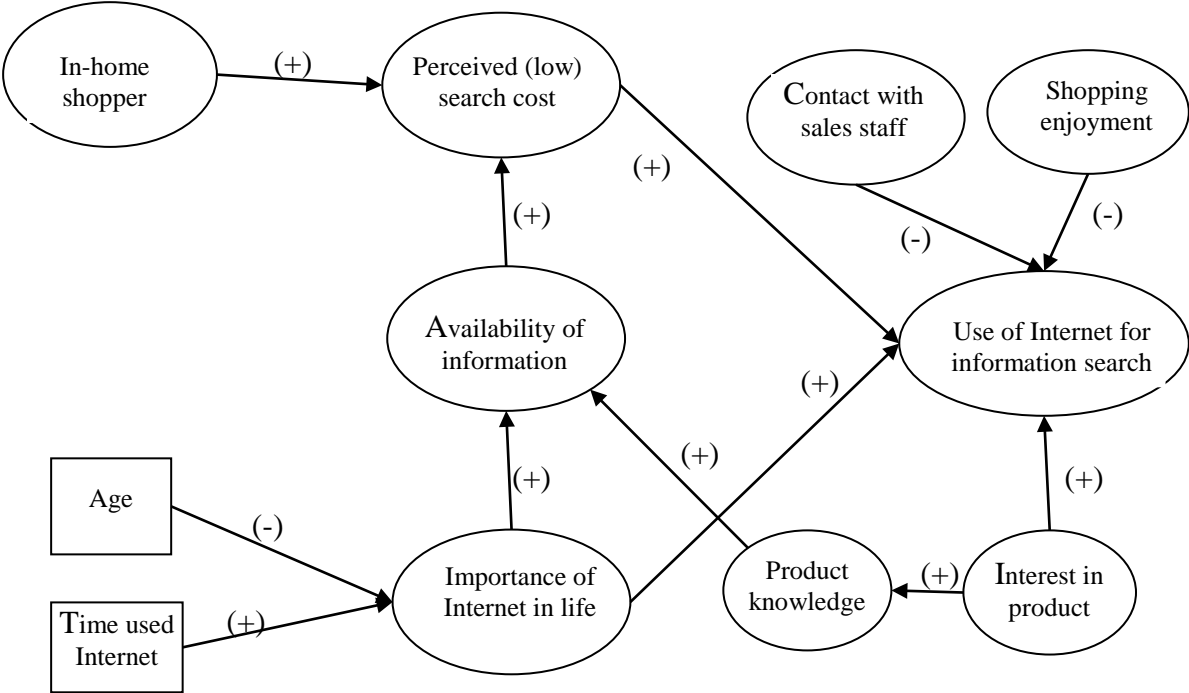
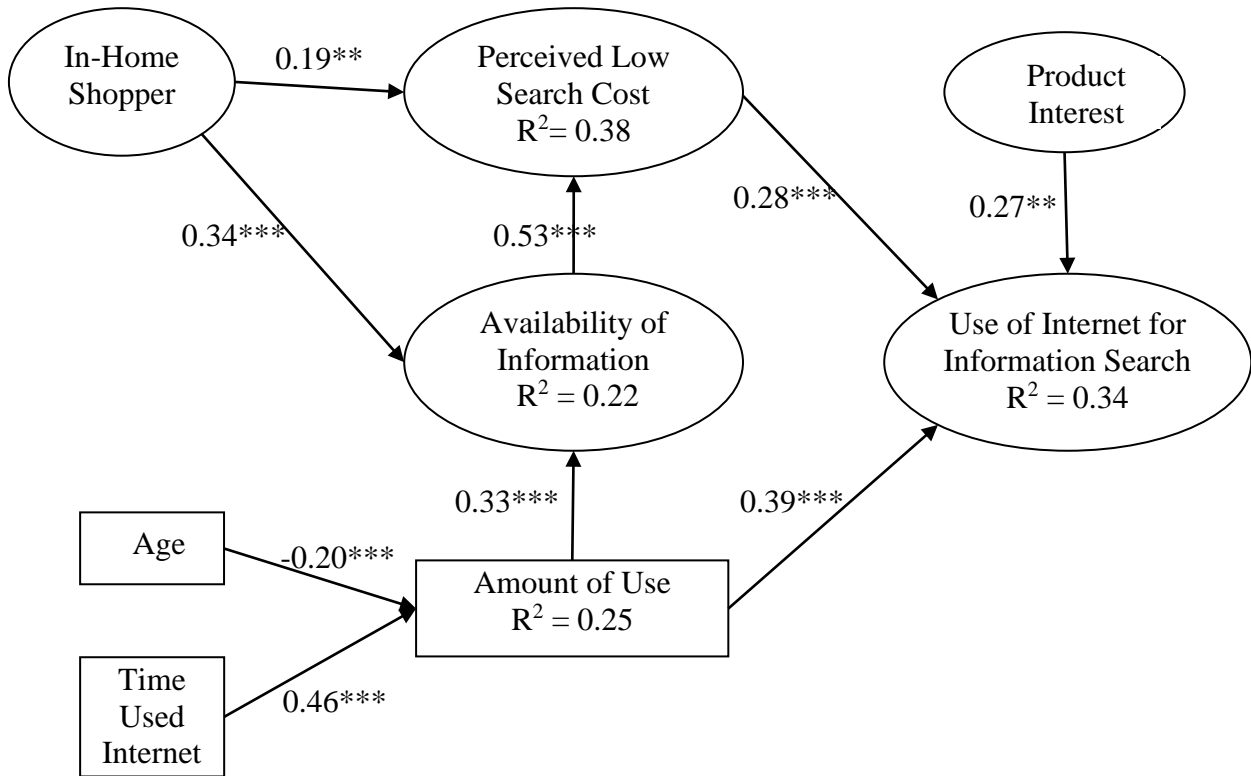


Figure 2. Final Internet Search Model



Standardized parameters  
 R<sup>2</sup> are squared multiple correlations  
 \*\*\*p<0.01 \*\*p<0.05, \*p=0.093