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channels in the automobile purchase process**

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Involvement and use of multiple search channels in the automobile purchase process

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Abstract

This study investigates the relationship between involvement and use of multiple search channels in the case of pre-purchase information search for automobiles. We derive theoretical hypotheses by combining arguments from both an economic (or cost/benefit) approach and a motivational perspective. We test our theoretical framework on a sample of 1392 Dutch consumers using a structural equation–model approach. We find that interpersonal sources and retailers are consulted relatively often and their use is not strongly related to involvement. The use of channels such as the World Wide Web and mass media is instead strongly related to involvement, because their specialized content is best appreciated by highly involved consumers. Finally, the theoretical and managerial implications are discussed.

Keywords: pre-purchase information search, involvement, automobile purchase

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Introduction

One of the most widely investigated topics in consumer research is pre-purchase information search. In literature, two types of search are distinguished, namely internal and external (Blackwell, Miniard et al. 2001; Guo 2001). Internal search consists of internal memory scans by the consumer for information relevant to a purchase decision. External search refers to consulting external information sources. Examples of external search channels include interpersonal channels, mass media, retailers (Kiel and Layton 1981), and the World Wide Web (WWW) (Biswas 2004).

An important antecedent of search is enduring involvement with a product (Beatty and Smith 1987; Schmidt and Spreng 1996; Gursoy and McCleary 2004). Enduring product involvement captures a consumer's involvement with a product class (Mittal and Lee, 1989). The concept reflects the perceived personal relevance of a product to the consumer in terms of needs, values, goals, and interests (Zaichkowsky 1985; Celsi and Olson 1988; Mittal and Lee 1989). Several studies discuss a positive relation between involvement and the extent of external search (e.g. Punj and Staelin 1983; Richins and Bloch 1986; Beatty and Smith 1987; Schmidt and Spreng 1996; McColl-Kennedy and Fetter 2001; Gursoy and McCleary 2004).

However, these studies only investigate the extent of external search in general. They neglect an important dimension of pre-purchase information search suggested by Kiel and Layton (1981), namely the types of search channels used. Many studies focus on the relationship between involvement and the use of a particular search channel, such as the Internet (see for instance Peterson and Merino 2003; Mathwick and Rigdon 2004) or interpersonal channels (see Gilly, Graham et al. 1998). To our knowledge, there are no recent studies that comprehensively analyze the use of different information-search channels in relation to

product involvement. The present study formulates theoretical propositions on the relationship between enduring product involvement and the use of various search channels in the purchasing process. It also provides explorative empirical insights from a study on car purchases by comparing the different search channels in terms of their relationships with involvement. The findings of this study can help marketers to identify the most appropriate channels for targeting segments of either more or less involved consumers.

In the next section, we present our theoretical model and relate it to the existing literature. We then discuss an empirical test of the model for the case of car purchases. In the methodology section, we describe the survey conducted to collect data to test our model and the measurement of the key concepts and relations. The empirical results are based on a sample of 1392 households owning a car in the Netherlands. In the empirical analysis, we also consider the role of the consumers' general experience with channels and of their socio-demographic characteristics. Considered together, these variables provide insights into the potential explanatory mechanisms underlying the main relations in our model. Finally, we discuss the theoretical and practical implications of our findings.

Theoretical framework

In this section, we briefly review the literature on the antecedents of pre-purchase information search and discuss the different search channels considered therein. We then build a research model to explain the use of different information channels and formulate a set of hypotheses about the role of product involvement.

Product involvement and pre-purchase information search

There are two types of involvement: enduring (or ego) and purchase involvements (Beatty, Kahle et al. 1988). Enduring involvement is “independent of purchase situations and is

motivated by the degree to which the product relates to the self and/or the hedonic pleasure received from the product” (Richins and Bloch 1986,p. 280). Purchase involvement (similar to situational involvement, but more narrow) “relates to the level of concern for, or interest in, the purchase process triggered by the need to consider a particular purchase” (Beatty, Kahle et al. 1988, p.150). A high level of enduring involvement leads to a higher involvement during the purchase process (Beatty, Kahle et al. 1988). However, some scholars argue that these two types of involvement are antecedents of the consumers’ levels of felt involvement and are not separate types (Celsi and Olson 1988). Because we are interested in the relationship between involvement and search independent from the specific purchase situation, we consider the concept of enduring involvement as the main independent variable. Our dependent variable is the use of various search channels.

According to Schmidt and Spreng (1996), there are two dominant theoretical streams that explain search¹. The first is the economic stream, which uses a cost-benefit framework to explain consumer-search behavior. The second is the psychological/motivational stream, which reasons from the motivation and ability to search. The two streams are not entirely unrelated because the perceived costs and benefits of the search also influence the motivation to search.

Schmidt and Spreng (1996) classify enduring involvement as a variable proposed by the psychological/motivational stream, whereas situational involvement is classified as a part of the economic stream. Research has shown that enduring involvement is closely related to previous knowledge about the product category (Sujan 1985; Celsi and Olson 1988), which is instead classified as an antecedent of search by the economic approach (Schmidt and Spreng 1996). Because it is not entirely clear whether the two types of involvement are conceptually different and because the economic and motivational streams are related, the role of involvement in the choice among different types of search channels can be understood by

¹ Srinivasan (1990), claims that there is also a third ‘information-processing’ stream. Schmidt and Spreng (1996) argue that this third stream is actually part of the psychological/motivational stream.

combining arguments from an economic perspective with arguments from a motivational perspective.

From an economic perspective, each search channel has a specific information content and certain attached costs in terms of time, money, and effort to get the required information (Srinivasan and Ratchford 1991; Moorthy, Ratchford et al. 1997; Borgatti and Cross 2003). In an economic or utility framework, consumers try to minimize their search costs while simultaneously maximizing benefits (Stigler 1961; Ratchford 1982; Schmidt and Spreng 1996; Moorthy, Ratchford et al. 1997). The primary search costs consist of time, money, and cognitive effort. According to Borgatti and Cross (2003), search costs can further consist of loss of reputation by admitting ignorance when searching, obligations resulting from knowledge exchange, and physical distance. The extent of involvement affects the costs and benefits of search.

From a motivational perspective, search channels can have certain characteristics that make them more attractive to use for highly involved consumers compared to other channels. For example, certain channels can provide additional hedonic value during the search (Babin, Darden et al. 1994), thus consumers may enjoy searching those particular channels.

In terms of types of search channels, Kiel and Layton (1981) discern three main categories: interpersonal channels, mass media, and retailers. Interpersonal channels (also called word-of-mouth) are defined as “informal communications directed at other consumers about ownership, usage, or characteristics of particular goods and services and/or their sellers” (De Matos and Rossi 2008 p. 578). Mass-media channels are the impersonal information sources that target a broad audience, such as radio, television (TV), and newspapers. Finally, retailers advise consumers as part of their service offer to consumers. More recently, information search by the consumer is also heavily influenced by the WWW (Alba, Lynch et al. 1997; Bakos 1997; Biswas 2004). Compared to other external channels, such as retailers or

specialized media, the WWW provides a wealth of information against relatively low costs (Biswas 2004). As a result, the Web competes with other channels in the search process (Ratchford, Talukdar et al. 2007). On the contrary, the Web-search channel is not necessarily more efficient, because it provides an overload of information that the consumer cannot always comprehend (Biswas 2004). It is therefore worthwhile to consider the WWW separately from the other external search channels.

Research model and hypotheses

We aim to investigate the effect of product involvement on the use of the four different categories of search channels outlined above. For each proposed relationship, arguments from both the economic and motivational streams will be used.

Ultimately, we also wish to compare the relationships to find out which channels are more affected by involvement and how. This additional conceptual step can only be highly speculative and is likely to strongly depend on the specific product category considered. We will only investigate similarities and differences among the types of search channels *ex post*, based on the empirical results.

Internal search

Internal search takes place before the external search (Blackwell, Miniard et al. 2001), because the consumer typically first evaluates his/her own previous knowledge before consulting other sources (Punj and Staelin 1983). The use of the information obtained from the internal search directly depends on the previous knowledge that the consumer has (Blackwell, Miniard et al. 2001). Because more involved consumers are also more knowledgeable (Gursoy and McCleary 2004), they also have more information at their

disposal (Johnson and Russo 1984; Kerstetter and Cho 2004). Hence, a positive relationship² between involvement and internal search is expected.

H1: There is a positive relationship between involvement and internal search.

Interpersonal search

Several authors claim that during their external search for information, consumers rely mostly on interpersonal (or word-of-mouth) communication (Katz and Lazarsfeld 1964; Price and Feick 1984; Gilly, Graham et al. 1998; Harrison-Walker 2001; Brown, Barry et al. 2005). The primary reasons for this tendency are that interpersonal channels are easy to access and the information drawn from them is considered reliable (Price and Feick 1984; Borgatti and Cross 2003). The use of interpersonal search is thus expected to be relatively high compared to the other external search channels considered.

From an economic perspective, the expected relationship between involvement and interpersonal search is unclear. On one hand, consumers with a larger expertise need to find less additional information to make their purchase decision and therefore make less use of interpersonal search (Punj and Staelin 1983; Gilly, Graham et al. 1998); this implies a negative relationship between involvement and interpersonal search. On the other hand, a greater expertise allows the consumer to better interpret new knowledge (Johnson and Russo 1984). The ability to search thus increases with expertise, because expertise is positively linked to involvement (Sujan 1985; Celsi and Olson 1988); hence, a positive relationship between involvement and interpersonal search can be expected.

To consider the role of involvement in the interpersonal search for a motivational perspective, one needs to take into account that the interpersonal channel is the only type of source where the consumer can have two different roles, that of sender and receiver (Gilly, Graham et al.

² Note that all proposed hypotheses are formulated in a non-causal manner; we do not make any claims about cause and effect, only regarding whether the concepts are related to each other or not.

1998). From the sender's perspective, according to De Matos and Rossi (2008), the most important antecedent of word-of-mouth communication about a product is commitment to a certain product or brand (Moorman, Zaltman et al. 1992:p.316). At the same time, an important antecedent of commitment is enduring involvement (Beatty, Homer et al. 1988). Hence, a positive relationship between involvement and use of interpersonal sources as sender is expected. We are primarily interested in the use of interpersonal sources from a receiver's perspective. The question is whether highly involved consumers use interpersonal channels to transmit their knowledge to others because they like to share information or whether they instead use interpersonal channels to confirm and match their own knowledge with other highly involved consumers. Especially in the second case, we would expect that more involved consumers are more motivated to use interpersonal channels to search for product-related information than less-involved consumers.

To summarize, the economic argument provides support for either a negative or a positive relationship, and the motivational argument suggests a positive relationship between involvement and interpersonal search. Overall, the arguments point to a positive relationship:

H2: There is a positive relationship between involvement and interpersonal search.

Mass Media

Mass-media search channels contain abundant, often more specialized, information than interpersonal search (Katz and Gurevitch 1973). At the same time, the information one can get is restricted by the content of the channel and by the moment that the information is made available (for example, the time when a show is being broadcasted or when a new type of car is discussed in a car magazine).

From an economic perspective, it can be argued that mass-media channels are relatively expensive, because the consumer cannot get access to information at all times. Also, because

of their specialized content, mass-media channels are mostly of interest to higher-involved consumers, who are able to interpret the information (Johnson and Russo 1984; Alba and Hutchinson 1987; Sambandam and Lord 1995).

To explain the relationship between involvement and mass-media search from a motivational perspective, it can be argued that the specialized content of such channels is only of interest to selected groups of consumers. Car magazines and automobile shows on TV, for example, mostly appeal to users that are more involved in cars and derive pleasure from searching through mass media.

Both the economic and motivational arguments thus predict a positive relationship between involvement and mass-media search. Empirical evidence has indeed shown that highly involved individuals, such as opinion leaders, make more use of mass-media channels than others to obtain information (Katz and Lazarsfeld 1964; Rogers 2003).

H3: There is a positive relationship between involvement and use of mass-media channels.

WWW

Although the WWW has drawn considerable attention from researchers as a new search channel, a study by Johnson et al. (2004) reported evidence that the amount of actual searching carried out on the Web is actually quite limited, compared to what one might expect. From an economic perspective, the WWW has dramatically reduced the search costs for new product information (Alba, Lynch et al. 1997; Bakos 1997; Peterson and Merino 2003; Lindsey-Mullikin and Grewal 2006). However, the WWW also provides an overload of information (Biswas 2004). Consumers have to develop the skill of either sorting the information they have obtained, making sense of such information, and determining its reliability or find the Internet sites that can help them with conducting these tasks. Highly involved consumers are better able to do all this, because they are more knowledgeable about

the product and can already, for instance, identify a few dimensions with reference to which different products can be compared.

From a motivational perspective, we also expect a positive relationship between involvement and online search. Mathwick and Rigdon (2004) find that highly involved consumers experience more enjoyment and escapism (so-called “perceived play”) during online searching than less-involved consumers. This is in line with previous arguments from Bloch et al. (1986) and (1983).

Therefore, we expect a positive relationship between involvement and use of WWW as a search channel.

H4: There is a positive relationship between involvement and use of WWW.

Retailer search

According to Sambandam and Lord (1995), consumers engage in retailer search after they have decided upon a set of products based on their search of other channels. Retailer search can thus be viewed as a separate stage in the search process, which every consumer usually goes through, regardless of the levels of involvement.

In addition to a utilitarian value, consumers attach hedonistic values to the shopping experience (Babin, Darden et al. 1994; Sands, Oppewal et al. 2008). It has been shown that product involvement is an important factor for obtaining pleasure during retailer search (Titus and Everett 1995; Jones 1999). Therefore, we expect consumers with a higher involvement to make more use of retailer search than lower-involved consumers.

H5: There is a positive relationship between involvement and retailer search.

Methods

Sample and data collection

Totally, 1392 households in The Netherlands owning a car were surveyed. The sample was obtained by personally delivering questionnaires to households all over The Netherlands. Households were screened for the presence of a car and the willingness of the person who had been most involved in the purchase process to fill in the questionnaire. Households unwilling to participate were replaced with other households until 1500 questionnaires had been distributed. The filled-in questionnaires were collected a few days after delivery. Quotas were set by gender and age for the sample to be representative for the Dutch population. Verification with the data from the Dutch Central Statistical Office (CBS 2007) confirmed the data to represent these population statistics of Dutch households owning a car well. Only the education level of the respondents was higher than that observed for the general population.

The questionnaire included items measuring the current level of involvement with cars, the use of search channels in the car-purchasing process, current experience with the use of channels in general, and a number of socio-demographic variables. Involvement was measured with the IPCA Automobile Involvement Scale used by Bloch (1981). Items from the factors “readiness to talk to others about cars” and “interest in cars” were used as indicators for involvement. To measure the use of search channels, statements were formulated about the use of various information channels in the process of purchasing the car. Respondents could rate them on a 5-point Likert scale that varied from ‘fully disagree’ to ‘fully agree’. Many studies measure search by the actual time spent on search. However, measuring search time during the car-purchase process can be very problematic, because consumers are asked the exact amount of time in retrospect over a relatively long period of time. Therefore, we used a series of 5-point-scale indicators. To minimize the risk of common

method bias (Podsakoff, MacKenzie et al. 2003), the use of search channels was measured in a separate section of the questionnaire. Table 1 explains the exact operationalization of involvement and the use of search channels. Multiple imputation (Donders, van der Heijden et al. 2006) was used to deal with missing values, using the PRELIS 2.0 program (Jöreskog and Sörbom 2006). Among the responses, 2.25% of the values were missing; all but four cases were successfully imputed.

We controlled for two potentially confounding effects that might affect the main relationships proposed. First, a larger experience with an external search channel can reduce the information-search costs (Moorthy, Ratchford et al. 1997). Such experience makes it easier for consumers to acquire and process new information (Brucks 1985; Biswas 2004), which increases the efficiency of the search (Goldman and Johansson 1978). This in turn will lead to an increased use of the channel for information search (Blackwell, Miniard et al. 2001). Therefore, we control for the amount of experience a consumer has of the available communication channels, which include (1) telephoning, (2) being with family and friends, (3) emailing, (4) watching TV, (5) listening to the radio, (6) newspapers and magazines, (7) car magazines, (8) surfing the Internet, and (9) shopping. All these channels are possible sources of product-related information, but information search is of course not the only reason for consumers to use these channels. The experience with channels 1, 2, and 3 can be considered to influence the use of interpersonal channels; the experience with channels 4 to 7 relates to mass-media channels; channel 8 is Web-related; and channel 9 is retailer-related. We measure the general use of channels as the average hours per week spent on the various channels. Because this variable captures the use of a channel on a regular basis, the issue of retrospective bias does not apply.

The second set of control variables considered concerns the demographic characteristics of consumers. Past studies have shown that socio-demographic characteristics are associated with search behavior (e.g. Kiel and Layton 1981; 2003; Gursoy and McCleary 2004; Ratchford, Talukdar et al. 2007). Therefore, the following demographic variables are added to

the model: age, sex, education level, income, and the number of inhabitants in the town of residence.

Table 2 shows the measurement of the two sets of control variables.

Insert Table 1 about here

Insert Table 2 about here

Analysis

A structural equation model was fitted using the maximum-likelihood estimation procedure available in the software LISREL 8.80 (Jöreskog and Sörbom 2006) using. First, two confirmatory factor analyses were conducted to establish the measurement model for involvement and for the use of search channels. The measurement model for search channels contained two constructs with two indicators each (see Table 1). Because this limited number of indicators leads to under-identification of parts of the measurement model, equality constraints were enforced.

Both measurement models and the single-indicator control variables were combined into a single model to test our hypotheses. In the model, we allowed for covariance among search-channel variables (see Appendix 1). Furthermore, error covariances among indicators were allowed if the modification indicated that this would dramatically improve the model fit (see Appendix 2).

To test our hypotheses, we estimated the slopes of the latent variable equations relating involvement to the use of each search channel. To investigate the use of channels, we are also interested in the intercepts of the latent variable equations. The intercepts indicate the use of the various channels when the involvement variable has the value zero. Normally, LISREL uses mean-centered variables. As a result, the measurement equations have no intercept.

Furthermore, when estimating a latent variable, LISREL automatically gives this variable a mean value of zero. Intercepts were specified for latent variables in the measurement models by using the mean values of the indicators. This was accomplished by substituting the mean values that LISREL provides by default for the indicators as a result of polychoric correlations with the actual calculated mean values of the original items. Per latent construct, equality constraints were enforced on the intercepts of the measurement equations. As a result, the intercepts for all indicators per latent variable became equal to each other. The intercepts of the measurement model are an estimator for the mean values of latent variables. These mean values in turn are required to estimate an intercept for the latent variable equations.

To estimate the intercepts for the latent variable equations, we used the Alpha-matrix in the LISREL program³. Estimation of the intercepts in the model does not change the size of the estimators nor the p-values. It does, however, influence the amount of variance explained for each equation and also the overall model-performance indicators, because additional parameters are estimated. Therefore, we report these values for both versions of the model: either including or not including intercepts. Reporting the values for a model without intercepts allows for a better comparison with models from other studies and therefore enables a better interpretation of the results.

Model-performance indicators are the Goodness-of-Fit Index (GFI), Root-Mean-Square Error of Approximation (RMSEA) and Normed-Fit Index (NFI), and model Chi-square with degrees of freedom. For the model relating involvement to use of search channels, the discriminant validity was assessed using the method of Fornell and Larcker (1981). The discriminant validity test requires that the average amount of variance explained by each of

³ This was achieved by fixing the values in the Alpha-matrix to the mean values of the latent variables (in case of independent variables, the negative of the mean values); the program was able to estimate the intercepts for the latent-variable equations. In this manner, we were able to estimate a model that provides both estimators and intercepts for latent-variable equations.

the measurement constructs be larger than the variance explained by the latent constructs in the structural model.

We present the unstandardized estimators for both direct and total effects. Total effects capture both the direct and the indirect effects that independent variables have on dependent variables; in our case, the indirect effects include the effects that the control variables have on the use of search channels through their effects on involvement. Presenting both the direct and total effects thus provides information on how the involvement and the control variables are related to each other, which gives a better understanding of the results⁴.

Results

Tables 3 and 4 report the estimated direct and total effects for the latent variable equations of our model: the columns represent dependent variables, whereas the rows correspond to the independent variables. In each table, we show the unstandardized effects and the intercept, which is an indicator representing the relative use of the channel when involvement is zero. The GFI of the version without an intercept is 0.93, the RMSEA is 0.054, and the NFI is 0.94; this indicates that the model has an excellent fit. The model Chi-square is 1602.72, with 317 degrees of freedom. For all paths, the conditions for discriminant validity were met. The version of the model that contains intercepts has a GFI of 0.93, an NFI of 0.76, and an RMSEA of 0.75. The model Chi-square is 2907.32, with 330 degrees of freedom. This is still an acceptable fit, although these indicators are difficult to compare with the normal model-performance indicators.

⁴ The questionnaire measured the search effort before purchasing a new car. A potential problem in modeling the hypothesized relationships could be a confounding effect by the number of years from the time the consumer last purchased a car. People whose last purchase is more recent could use different search channels and have different levels of involvement than consumers whose last car purchase is further back in the past. To control for this ambiguity, a model was fitted with the year of purchase interacting with involvement. The results showed that there were no significant interaction effects and only one significant direct effect by year of purchase that only explained less than 1% of the variance. Therefore, the time of purchase has no influence, and we do not include it in the final model.

The first column of results in Table 3 shows the positive relationships between involvement and experience for the activities of watching TV, hours of shopping, reading car magazines, and telephoning. There are negative relations between involvement and experience regarding surfing the Internet, reading newspapers, age, education level, and the number of inhabitants. Furthermore (hardly surprising), men are more involved with cars than women. In total, the control variables explain a large part of the involvement variable.

Insert figure 1 about here

Insert table 3 about here

Insert table 4 about here

Involvement and search-channel use

Table 3 shows that involvement has a significant positive relation with the use of search channels. There are, however, significant differences in the size of coefficients and in the amount of variance explained. In particular, there is no significant difference between the predictors for internal search, mass-media channels, and the use of WWW, whereas interpersonal channels and retailers have significantly lower slopes for the estimated relation. The positive estimates imply that the total search effort increases as involvement increases. A graphical representation of the relationships between involvement and use of search channels is shown in Figure 1. Because the total search effort increases with involvement, the figure shows two graphs. Figure 1a represents the relationships in absolute terms and relates directly to the testing of our hypotheses. Figure 1b represents the relationships relative to the total

amount of search, which is the sum of the use of all search channels. This figure shows the change in the proportion of each search channel with varying levels of involvement.

Figure 1a reveals that consumers rely on retailers and interpersonal channels in purchasing a car, but the use of these channels is not strongly related to their involvement. There is instead a strong relationship between involvement and use of the WWW and mass-media channels. Consumers with low involvement hardly rely on these channels, whereas those with high involvement use them more frequently than they use retailers and interpersonal channels. Finally, internal search is also strongly related to involvement, but with a much higher intercept. As soon as involvement becomes larger than 1.14 (on a five-point scale), consumers make more use of internal search than using retailers or any other channel. The increase in the total search effort with involvement is thus largely a result of an increase in use of internal search, mass media, and the WWW. These results provide support for the hypotheses 1, 2, 3, and 4. There is also a weak but significantly positive relationship between involvement and retailer search. However, the amount of explained variance is very low; therefore hypothesis 5 is only weakly supported. The use of retailers has the highest intercept, which indicates that less involved consumers mostly rely on retailers when buying a car. This supports the claim by Sambandam and Lord (1995) that retailer visits are a separate and necessary stage in the car-purchasing process.

Relative to the total amount of search (figure 1b), it can be seen that interpersonal and retailer searches are of particular importance to less-involved individuals, whereas for highly involved individuals, the share for each external search channel is approximately the same. This result means that although the total amount of search increases with involvement, the relative amount of search per channel also changes with varying levels of involvement. Less involved consumers rely more on channels that are generally accessible for everyone, and much less on the channels that require higher efforts for their use as information sources (mass media and the WWW).

General experience with channels

The estimates of the total effects table show that internal search is negatively related to listening to the radio and positively related to reading car magazines, telephoning, and spending time with family and friends. Similar results are found for direct effects, except for the relationship with reading of car magazines, which is explained by involvement.

In terms of total effects, experience with two interpersonal communication media (telephoning and spending time with family and friends) and reading car magazines are positively related to the use of interpersonal search channels. Direct effects show that involvement explains the effects of reading car magazines and spending time with friends and family. However, the effects of friends and family are very small. This indicates that involvement has a limited explanatory influence on the relationship between the experience with using these two interpersonal channels and search channels in the car-purchasing process.

In the total effects model, mass-media search is positively related to the experience of watching TV, shopping, reading car magazines, and telephoning, and there is a negative relationship with emailing and chatting. In the direct effects model, the effects of shopping, reading car magazines and telephoning are explained by involvement. Due to their negative relationship with involvement, the experience with surfing the Internet and reading newspapers and magazines becomes significant. An interesting finding is the strong positive relationship between the use of mass-media search channels and time spent on surfing the WWW in the total effects model; this is evidence that mass-media search and WWW search are somehow related to each other.

In the total effects model, there is a strong positive relationship between experience with surfing the WWW and using the WWW as a search channel. Also, a negative effect of newspapers and magazines is found. The effect of the WWW remains after controlling for

involvement in the direct effects model. Furthermore, an additional negative relationship between car magazines and the WWW is apparent. The negative effect of car magazines is an indication that people surf the WWW as a substitute for car magazines.

Finally, neither in the total effects model nor in the direct effects model predicting retailer search do we find any significant effects of channel experience.⁵ This result is in line with the previously cited argument by Sambandam and Lord (1995).

Demographics

The results in Table 4 show that age has no effect on internal search but has a negative effect on the use of all external search channels, except the retailers. This supports previous findings that external search decreases with age (Kiel and Layton 1981). When looking at the direct effects, however, we see that a positive relationship exists between age and internal search. This implies that, when controlling for involvement, older people engage more in internal search. This is possibly due to the fact that older people are likely to have more experience than younger people and are therefore better able to conduct an effective internal search. The negative relationships between age and external search channels observed in the total effects model weaken or completely disappear in the direct effects model. Involvement thus explains a large part of the relationship between age and external search. If the experience of older people allows them to conduct a more effective internal search, then this would also explain why they engage less in external search. An efficient successful internal search decreases the need for an external search.

In the total effects model, it can be detected that women make more use of interpersonal channels and retailers, whereas men rely more on mass media and the Internet. The direct effects model shows that these differences are in fact explained by involvement. When controlling for involvement, men make significantly greater use of internal search, whereas

⁵ Moreover, a model including experience with the search channels but no socio-demographic variables did not give any significant results for retailer search.

women rely more on external search channels. This finding might be due to the fact that men and women have different learning styles (see for instance: Severiens and Tendam 1994; Philbin, Meier et al. 1995)

In the total effects model, education level has a small positive relation with the use of interpersonal channels and the WWW, whereas there is a negative relationship with the use of mass-media channels. In the model controlling for involvement, a positive relationship appears on internal search. Education level can be viewed as a measure of general knowledge (not related to a specific product domain). It is possible that when searching, consumers rely on their domain-specific knowledge, resulting from their involvement and their general knowledge base. In the direct effects model, a positive effect of education level and use of all external search channels, except retailers, is found. When correcting for involvement, the highly educated thus conduct more external search. This result for interpersonal channels and mass media is in line with the findings of Klein and Layton (1981); the results of the WWW are in accordance with those of Klein and Ford (2003) and Ratchford et al. (2007).

The effects of income are relatively small in the total effects model. There is a negative relationship with the use of interpersonal channels and a positive relationship with Internet use. However, the difference in estimators between the total effects and the direct effects models is very small. There are no significant indirect effects of income on search-channel use (result not shown here). Because this effect is minimal, it is difficult to say whether the results is the outcome of the large sample size or the method of measurement, or whether it has actual implications. A possible explanation is that higher-income respondents work more hours and have less time to use interpersonal channels. Another reason can be that consumers with higher incomes are more likely to drive leased vehicles, which makes the use of car more work-related. This can reduce the need to consult interpersonal channels. The positive effect of income on the WWW use has previously been reported by Ratchford et al. (2007).

Finally, there is a small negative effect of the number of inhabitants in the place of residence on internal search, and there is no significant indirect effect. Again, this effect is relatively small and thus can be caused by the large sample size.

Concluding remarks

This study aimed to relate involvement to the use of various search channels in the car-purchasing process. By considering the dimension of information sources, we have been able to provide a more detailed account of the relation between involvement and consumer search. In developing our research hypotheses, we combined arguments from both economic and motivational perspectives in an original theoretical framework. The theoretical hypotheses were tested in a large sample of Dutch consumers for the domain of automobiles.

The results of this study offer more detailed insights on how information-search channels are used in combination with each other and in relation to involvement. This adds to the insights provided by studies that investigated (i) involvement and external search without considering separate sources (e.g. Punj and Staelin 1983; Schmidt and Spreng 1996; Guo 2001) and (ii) the use of a single source only (e.g. Gilly, Graham et al. 1998; Peterson and Merino 2003).

Our empirical results indicate, first of all, that the positive relation between involvement and search is strongest for mass-media and WWW, whereas the use of interpersonal channels and retailers is only mildly related to involvement. An interesting finding here is that the relationship between involvement and WWW search hardly differs from the relationship between involvement and mass-media search. In fact, we also find a strong positive correlation between the use of mass-media channels and WWW. Although these relationships look similar, the underlying processes that explain them may differ. As discussed earlier, the use of mass-media search channels depends on how easily the demanded content is made available. Instead, being able to use the WWW depends on the ability to make sense of the

large amount of information it contains. We found similarities in terms of the demographics of heavy users of both channels; they are both most appreciated by a specific type of consumer (young men). This indicates that although the manner of providing the information by the two channels may differ, the nature of information provided and the corresponding use of both channels are remarkably similar.

Second, in terms of relative use, low-involved consumers rely mostly on retailers and interpersonal channels, whereas high-involved consumers use all channels to almost the same extent.

Third, next to involvement, control variables such as general experience with channels and socio-demographics also influence the use of search channels. In spite of the fact that such control variables account for some variance, some models (especially the model predicting retailer search) still have a large part of the variance left unexplained. This could partly be attributed to situational variations (Wendel and Dellaert 2005) or additional motives, such as instrumental or symbolic values attached to the car (see for instance Steg, Vlek et al. 2001). Future research could aim at improving the predicting power of models for channel use by expanding the set of explanatory variables included.

Finally, we note that, in line with other studies, the choice of consumers among different search channels depends on the product category being studied. In this study, the product category under investigation was cars, and our conclusions are thus limited to this product category. Still, the research hypotheses proposed are worth being tested with similar methods in other domains to establish how general they are. Further research could test the relation of involvement with search-channel use for other product domains.

We wish to conclude by discussing the managerial implications of our findings. Both the absolute and the relative use of search channels provide interesting insights for marketers to develop targeted strategies based on involvement.

The results indicate that low-involved consumers generally search less in absolute terms. In the search process, they mostly rely on retailers and interpersonal channels. Instead, highly involved consumers spread their search efforts more across the channels and can be effectively targeted through mass media and the Internet.

Models that incorporate demographic variables offer marketing managers practical tools for segmented-marketing strategies. By relating demographic variables to involvement, this study provides insights into whether the content of the message directed to a specific type of consumer should be basic or more advanced. It turned out that young, less-educated males are most involved with cars. The two channels that are easy to use for marketing managers, namely mass media and the WWW, are also preferred by the more involved consumers. The user profile of these channels also fits with the profile of the highly involved consumers in the domain of cars (young males). High-income and highly educated consumers also have a clear preference for the WWW as an information channel. This provides opportunities to communicate more about expensive car models through the Web. Compared to the other search channels, interpersonal channels and retailers are used more by younger women in the car-purchasing process.

Similar to the use of retailers, the use of interpersonal search channels is relatively high and not very strongly related to involvement. For marketing managers, interpersonal channels are the most difficult to use directly among the external search channels discussed here. When using interpersonal channels, one has to rely on third-party information brokers to get the message through to the broader audience. In spite of this difficulty, it can still be worthwhile for marketers to use interpersonal channels because these channels are used relatively often by less involved consumers.

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Table 1: The operationalization of the constructs and the measurement model. Completely standardized estimators, mean values of indicators, average explained variances, and mean values of latent constructs are reported. All estimators were significant at the 0.001 level.

*: Items are reverse-scored, i.e. mean values after reversing the scores are presented.

No.	Indicator	Estimator	Indicator Mean (S.D.)	Latent variable (explained variance; mean)
1	I enjoy discussing cars with friends	0.88	2.78 (1.23)	Involvement (0.52; 2.23)
2	I get bored when other people talk to me about cars*	0.54	3.04 (1.15)	
3	When with a friend, we often end up talking about cars	0.81	2.12 (1.04)	
4	I regularly discuss cars with friends	0.84	2.27 (1.09)	
5	Cars are nothing more than mere appliances*	0.56	2.25 (1.08)	
6	I do not pay attention to car advertisements in magazines or TV*	0.65	2.50 (1.22)	
<i>When buying a car, I make use of the following information sources:</i>				
7	My own experience	0.29	3.83 (0.95)	Internal search (0.45; 3.44)
8	My own knowledge about cars	0.58	3.32 (1.14)	
9	My close relatives	0.32	3.20 (1.15)	Interpersonal search (0.49; 2.98)
10	My friends	0.63	2.98 (1.07)	
11	People from my direct environment, e.g., school or work	0.52	2.79 (1.08)	
12	Advertisements and magazines about cars	0.48	2.80 (1.15)	Mass-media channels (0.51; 2.42)
13	Television programs about cars	0.47	2.33 (.99)	
14	Radio and television commercials	0.56	2.58 (1.16)	
15	Internet websites of various car brands and manufacturers	0.68	3.11 (1.24)	World Wide Web (0.59; 2.67)
16	Internet forums for consumers of cars	0.62	3.01 (1.24)	
17	Search engines, such as Google and Yahoo	0.47	2.55 (1.22)	
18	Garage owners	0.52	3.13 (1.10)	Retailer search (0.53; 2.96)
19	Car salesmen, dealers, or lease companies	0.55	2.82 (1.16)	

Table 2: Operationalization of the control variables

		Mean	Standard deviation
Telephoning	Average hours per week spent on the channel	3.46	3.97
Friends and family		9.73	9.96
Email and chat		6.61	4.58
TV		11.81	7.10
Radio		8.37	10.36
Newspapers and magazines		5.05	4.22
Car magazines		0.51	1.49
Surfing the internet		5.42	5.78
Shopping		2.63	2.82
Age		2007-Birthyear	46.18
Sex	1 = male, 2 = female	1 = 897 2 = 491	
Education level	7-point scale (1 to 7) ranging from illiteracy to a university degree, according to the Dutch education system	4.33	1.69
Income	7-point scale (1 to 7), indicating the net monthly household income, each point indicates a net increase of € 1000.	3.72	1.58
Inhabitants	5-point scale measuring the number of inhabitants in the place of residence	2.71	1.10

Table 3: Unstandardized direct effects

*: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$.

		Involvement	Internal search	Interpersonal search	Mass media	WWW	Retailer search
	Intercept		2.09	2.35	1.11	1.36	2.59
	Involvement		0.61***	0.28***	0.59***	0.58***	0.17***
	TV	0.02***	-0.01	0.00	0.01*	0.00	0.00
	Radio	0.00	-0.01*	0.00	0.00	0.00	0.00
	Surfing the Internet	-0.02***	0.00	0.00	0.02**	0.05***	0.00
	Email	0.00	-0.01	0.00	-0.02**	0.00	0.00
	Shopping	0.04***	-0.01	-0.01	0.01	-0.02	0.02
	Newspapers and magazines	-0.02*	0.01	0.01	0.02**	-0.02	0.01
	Car magazines	0.14***	-0.02	-0.01	0.01	-0.11***	-0.03
	Telephoning	0.00**	0.02**	0.02**	0.00	-0.01	0.01
	Family and friends	0.00	0.01**	0.00	0.00	0.00	0.00
	Age	-0.02***	0.02***	-0.01***	0.00	-0.02***	0.00
	Sex	-0.74***	-0.19***	0.28***	0.19***	0.25***	0.24***
	Education level	-0.10***	0.09***	0.08***	0.04*	0.17***	0.00
	Income	0.02	-0.01	-0.05**	-0.01	0.09**	-0.01
	Inhabitants	-0.05*	-0.05*	-0.08*	0.02	-0.02	-0.02
	With intercepts						
	R ²	0.87	0.62	0.38	0.67	0.47	0.08
	R ²	0.43	0.49	0.27	0.51	0.32	0.07

Table 4: Unstandardized total effects

*: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$.

		Internal search	Interpersonal search	Mass media	WWW	Retailer search
	Intercept	2.09	2.35	1.11	1.36	2.59
	TV	0.00	0.00	0.02***	0.01	0.00
	Radio	-0.01*	0.00	0.00	0.00	0.00
	Surfing the Internet	-0.01	0.00	0.00	0.04***	0.00
	Email	-0.01	0.00	-0.02*	0.00	0.00
	Shopping	0.01	0.00	0.03**	0.00	0.02
	Newspapers and magazines	0.00	0.01	0.01	-0.03*	0.01
	Car magazines	0.06*	0.03*	0.09***	-0.03	-0.01
	Telephoning	0.04***	0.02***	0.02*	0.00	0.02*
	Family and Friends	0.01**	0.00***	0.00	0.00	0.01
	Age	0.00	-0.01**	-0.01***	-0.03***	0.00
	Sex	-0.63***	0.07**	-0.24***	-0.18***	0.11***
	Education level	0.03	0.05*	-0.02	0.11***	-0.02
	Income	0.00	-0.04*	0.00	0.10**	-0.01
	Inhabitants	-0.11**	0.00	-0.01	-0.05	-0.03
	With intercepts					
	R ²	0.47	0.28	0.42	0.37	0.05
	R ²	0.29	0.15	0.15	0.19	0.04

Figure 1: Estimated relationships between involvement and the use of various search channels. Figure 1a shows the absolute relationships; figure 1b shows the channel use as a proportion of the total amount of search.

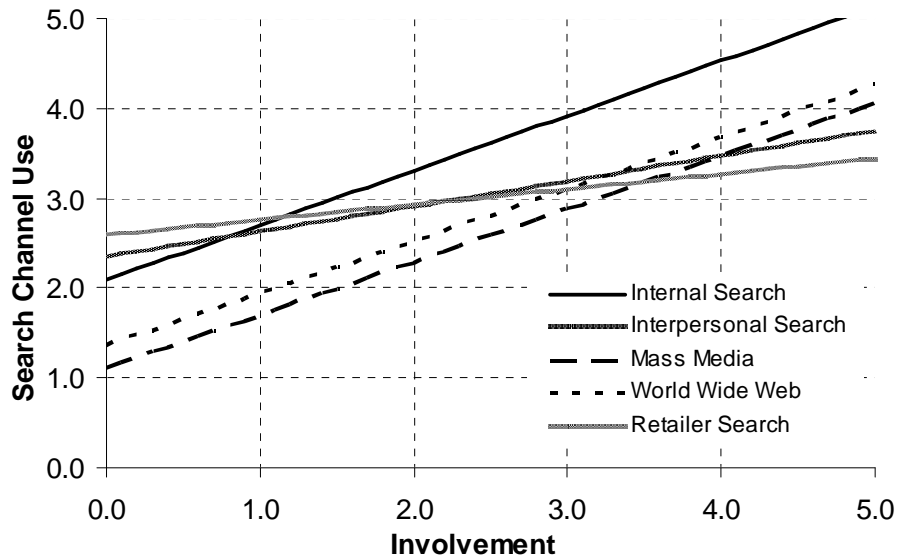


Figure 1a

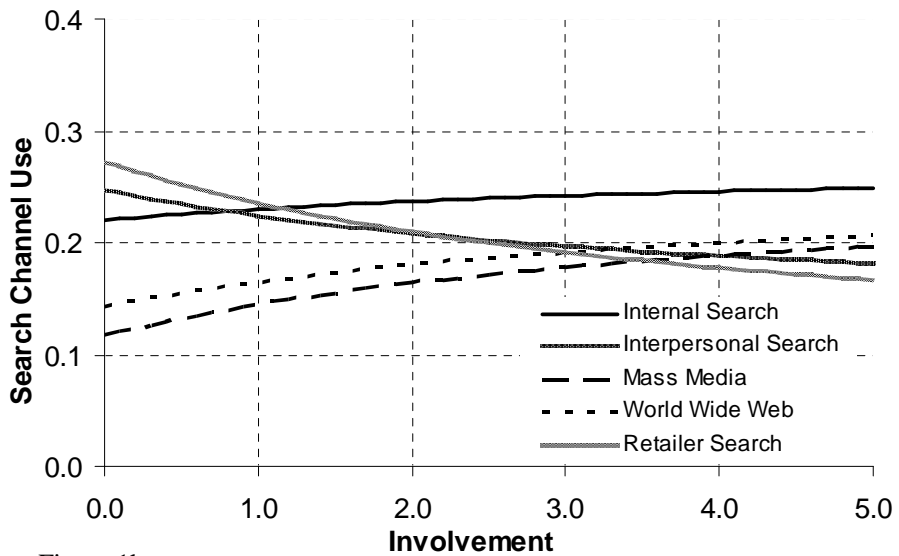


Figure 1b