

Information Search Behavior: A Comparative Study of Young and Old Adults

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Abstract

This study was an attempt to examine the information search behaviour of young and old adults in the purchase of high involvement products. The usage and importance of information sources and degree of search were examined. The model of external information search (Srinivasan and Ratchford, 1991) was tested by examining the hypothesized relationships. Comparisons between the young and old were then made. Findings show that the young and old do not differ significantly in terms of the use of sources of information and the importance given to each of the sources of information. On the whole, the information search activities are low among young and old adults. Based on Pearsons correlation, the findings support the hypothesized relationship that experience tends to reduce search activities. Perceived knowledge is positively correlated with perceived benefits; positive experience is negatively correlated with perceived benefits, and perceived risk has a positive relationship with perceived benefits.

Introduction

Although information processing among consumers has remained traditionally an area of interest to marketers, the advancement in technology which has transformed the ways

by which information are being transmitted should attract the attention of not only marketers but others such as policy makers and non-government organizations interested in reaching their target groups. Findings from previous studies show that age plays a role in influencing consumer behavior besides various aspects of behavioral and psychological differences (Roberts and Manolis, 2000; Wolfe, 1997; Warr et al., 2001). Moreover, empirical research on models of information search concentrates largely in the West. It would be interesting to empirically test the model of information search behaviour in Malaysia.

Objectives

Specifically, this study focuses on information processing for high involvement products in which more information search is required prior to decision making compared to routinely purchased products which require little or no information search. The extent of search for information and the sources used to gain information are examined. This study also compares the external search behavior between the young and the old adults. Based on the theoretical underpinnings of past research, this study tests several hypotheses using the model of external search for information developed by Srinivasan and Ratchford (1991).

Background of the Study

Information processing refers to an extensive set of heuristics, rules of thumb, or procedures by which consumers meet their information needs in deciding whether to buy or not (Howard, 1994). We can view information processing as a problem solving process in which consumer search behavior is a major determinant, which in turn enables the consumer to make a decision. Search behavior refers to a combination of mental and physical activities undertaken by an individual to obtain information on a number of available alternative solutions to a problem, the attributes' relative merit, and the consequences of selecting the various alternatives (Walters, 1974; p.537). Another definition for search is by Beatty and Smith (1987, p.85) in which search refers to the degree of attention, perception and effort directed toward obtaining environmental data or information related to the specific purchase under consideration. In this sense, search refers to an external search, which involves acquisition of information from outside sources: market sources, personal sources and neutral sources. The importance of each of these sources of information depends on the type of products for which information is required. Past research finds that personal sources are preferred in the purchase of services compared to products (Murray, 1991).

The extent to which an individual searches for information prior to a purchase tends to differ. According to Engel et al. (1973), an individual would continue to search for information as long as the perceived value of information exceeds the cost of obtaining information. Various factors influence the amount of external search that an individual conducts, namely, market characteristics, individual characteristics, situational characteristics, and product characteristics.

Research evidence found that the extent of information search in the consumer decision-making process varies with the significance of decisions to the consumer (Zaichowsky, 1985). The positive relationship between search for information and an individual consumer's involvement in a particular product or service means a greater extent of search for a higher level of involvement, which refers to consumers' perceptions of importance for an object, event, or activity (Peter and Olson, 1999). Hence, based on the degree of involvement of a purchase decision, we can classify decision making as high- or low-involvement. For a high-involvement purchase, an individual usually goes through an extended process of decision-making, which involves more time and effort being spent on information search. It is for this simple reason that this study has included only product/service that is generally classified as high-involvement purchase.

Besides the product characteristics that determine the extent of information search, personal characteristics such as age, education, income, and etc. also influence the extent of search. Taking into account the objective of this paper, the effect of age on information processing would be reviewed. In the process of growing old, individuals undergo gradual changes that ultimately affect the type of information they are exposed to. Graney and Graney (1974) find that television viewing and reading serve as substitutes for declining social participation in other areas. Schramm (1969) observes that people over the age of 65 spent, on the average, 45% of their leisure time in media consumption activities, whereas younger adults spent significantly less of their leisure hours in this pursuit. In terms of information source usage, the young differ from the old in their evaluation of media types and other sources of information (Bernhardt and Kinnear, 1976).

Lumpkin and Greeberg's study (1982) find that the elderly place less importance on all information sources than those younger adults. The elderly attach greater importance to advertisements, guarantees, store reputation, salespeople, and independent sources of information (Lumpkin and Festervand, 1987). Kahn (2001) observes that the younger adults spend more time listening to the radio and accessing the Internet, while the older adults spend more time reading newspapers and watching television. For financial services, the elderly rely heavily on interpersonal sources such as lawyers or accountants while the younger adults are more likely to use published and broadcast media sources and the Internet for information.

Model of External Search

Comprehensive theoretical models of search could be traced to Howard and Sheth (1969), but the earliest empirical attempt at a structural equation model of search was by Punj and Staelin (1983). They studied the search behaviors of automobile purchasers using a cost-benefit analysis. The three categories of variables examined in their study were: benefits of information search; cost of conducting the search; and individual factors. They found a significant negative relationship between using prior information and information search, but a significant positive relationship between prior memory structure (experience) and information search. Srinivasan and Ratchford (1991) developed a model that clarifies and refines variables used in the Punj and Staelin model. Their study is also based on the purchase of automobiles. They included determinants of perceived benefits, perceived risks, size of evoked set, and amount of experience. Srinivasan and Ratchford's study supported the negative relationship between the amount of experience

and search. As in the model of Punj and Staelin, Srinivasan and Ratchford (1991) also based their model on cost-benefit framework in which the basic proposition was that consumers will expend effort in search as long as the perceived benefits exceed the perceived costs. Their research findings confirmed that experience tends to reduce search, while subjective knowledge tends to increase it. This could be due to the offsetting direct effect on evoked set size and perceived benefits of search, which is consistent with the view that more knowledgeable consumers structure the purchase problem in richer, more complex ways and hence, see a need for more information. It could also be possible that knowledgeable consumers tend to search more because they are more interested in the purchase (Srinivasan and Ratchford, 1991).

Empirical Research on Services

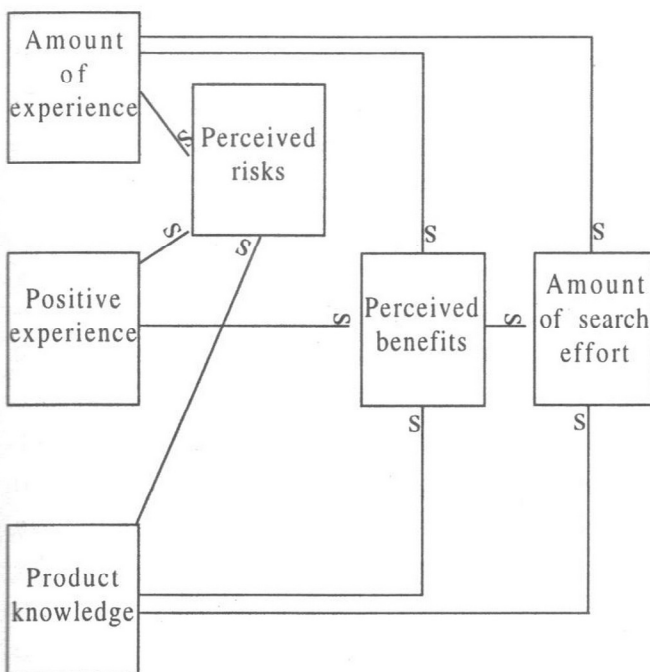
For information search behavior with respect to services, while past research tend to concentrate on studying the type of pre-purchase sources used by consumers and amount of search effort expended with little attention on the determinants of search effort (e.g. Freiden and Goldsmith, 1989, 1998; Murray, 1991, Stewart et al. 1989), a recent study by Heaney and Goldsmith (1999) attempts to examine the hypothesized effects of selected variables on the extent of information search. The earlier studies tend to be less comprehensive than in the studies for information search behavior for goods. Stewart et al. (1989) use search items solely focused on types of information sought by consumers when selecting a health care provider, with no reference to sources of information and the extent of information search (effort expended). Heaney and Goldsmith (1999) use the Banking Service Model (BSM) to test the hypothesized relationship with respect to banking services.

Their findings are consistent with the findings for tangible goods. In other words, consumers tend to have similar behavior with respect to their search behavior, regardless of the types of products.

Model and Hypotheses

Based on the review of literature, the model of Srinivasan and Ratchford (1991) was adopted and adapted in this study.

Figure 1
A Model of External Search for Information



Source: Srinivasan, N. and Ratchford, B.T. (1991) An Empirical Test of a Model of External Search for Automobiles, *Journal of Consumer Research*, vol 18: 234

As in the study of Srinivasan and Ratchford (1991), the present study focuses on the determinants of search efforts but does not consider the relationship between search and its outcome. However, this model differs from the model of Srinivasan and Ratchford in that this study does not con-

sider size of evoked set, cost of search and interest in cars. The focus of this study is on experience, positive experience, perceived risk and benefits, product knowledge, and search efforts.

Srinivasan and Ratchford (1991) distinguished between amount of experience and content of experience, which could be categorized into positive and negative experience. Their study supports a negative relationship between the amount of experience and search effort when other variables are held constant. Consumers who are experienced with a particular product-class are likely to have developed procedures for simplifying the decision and cutting down the amount of information needed (Srinivasan and Ratchford, 1991). Kiel and Layton (1981) found a negative relationship between amount of experience and search for cars. Punj and Staelin (1983) have similar findings. Relating experience to perceived risks it is obvious that consumers who are experienced will have lower level of perceived risk than less experienced consumers. Consequently, the amount of experience will also have a negative direct effect on perceived benefits of search.

H1: There is a negative relationship between the amount of experience and search effort.

H1 (a): There is a negative relationship between amount of experience and perceived risks.

H1 (b): The amount of experience will have a negative direct effect on the perceived benefits of search.

The quality of past experience is also important as shown in the study of Punj and Staelin (1983). A satisfactory experience with a previous car is an important determinant of usable prior knowledge. Hence, consumers who have prior satisfactory alternatives will experience a lower level of perceived risk and

will also have a negative direct effect on the perceived benefits of search.

H2: There is a negative relationship between positive experience and perceived risks.

H2 (a): Positive experience will have a negative direct effect on perceived benefits of search.

Product-class knowledge refers to knowledge relating to a brand or product that is stored in memory at the time the search commences (Srinivasan and Ratchford, 1991). According to Bruck (1985) product knowledge is internal knowledge or information that consumers have about a particular product class. For the purpose of this study, only subjective knowledge, which refers to what the individual thinks he/she knows, will be examined. The relationship between product class knowledge and information search is conflicting. Knowledge may limit search by allowing responses to become routine or by allowing relevant information to be readily separated from the irrelevant (Srinivasan and Ratchford, 1991). However, knowledge may at the same time lead to increased search by allowing consumers to have a richer understanding of what they are evaluating. In this case, knowledge may give rise to a situation in which knowledgeable consumers structure the purchase in a more complex way and therefore, see a need for more information. The increase in search allows the consumer to have a richer understanding of what they are evaluating. Since the products included in this study are high-involvement products, we would expect the respondents to search more for information prior to purchase.

H3: Subjective knowledge is positively related to the amount of information search.

Since a person with a higher level of perceived knowledge, tends to be more confident about the purchase and hence, he/she

would experience a lower level of perceived risk. Following the argument that consumers may structure the search problem as complex, it is postulated that subjective knowledge would result in a higher level of perceived benefit from search.

H3 (a): Subjective knowledge is negatively related to perceived risks.

H3 (b): Subjective knowledge is positively related to perceived benefits from search.

Based on the model, benefits of search refer to perceived benefits that result from the external search, including price reductions, obtaining the most desired model, and satisfaction with the decision-making process. Essentially, consumers would continue to search for more information if they perceived that the additional information would assist them in decision-making. Hence, it is hypothesized that perceived benefits have a positive impact on search effort.

H4: There is a positive relationship between perceived benefits anticipated by consumers and the search effort.

In this model, it is also hypothesized that search effort will be affected by perceived risks. A perceived risk is defined as the probability of any loss that can occur in the absence of any external search. The probability of the loss is to be viewed together with the importance attached to the loss (Srinivasan and Ratchford, 1999). Peter and Olson (1999) defined perceived risks as the undesirable consequences that consumers want to avoid when they buy and use products. The degree of risk that consumers perceive and their own tolerance for risk taking are factors that influence their search and purchase behaviors. It should be emphasized that consumers are influenced by the risk that they perceive, whether or not such risks actually exists (Schiffman and Kanuk, 1994).

Therefore, a major benefit of search is in the reduction in risks of purchase since additional information from more search efforts would enable the consumer to compare and evaluate different risks inherent in a purchase (Heaney and Goldsmith, 1999). We hypothesize that perceived risks increase the expected benefits of search.

H5: There is a positive relationship between the level of perceived risk and the perceived benefits of search.

Methodology

This study employed the survey research method. External search behavior of respondents was examined based on the purchase of two products: automobile and health care services. These two products are high-involvement products that are sufficiently important for consumers to recall purchase history (Bennett and Mandell, 1969). In addition, their purchase would also require some degrees of search effort prior to purchase. Automobiles included in the study were sport utility vehicles, multipurpose vehicles, and passenger cars. Health care services¹ that were considered sufficiently major to result in some form of information search were: hospital care, surgery, maternity care, mental health care, and dental care.

Research Instrument

The questionnaire was divided into four sections. Section I collected information relating to the purchase of automobile and health care services. The respondents were asked to

recall if they had purchased a car or health care services, or both the products in the past three years. Section II was designed to collect information on the extent to which sources of information were used and the respective importance of each of the sources in assisting them in the purchase. Respondents were also asked to indicate the amount of search efforts including the number of stores visited, number of visits made to the store, amount of experience the respondents have about the product class as well as the type of information that respondents expect to get from the stores visited. These questions were based on the study of Udell (1966).

In Section III, measures of perceived benefits of search, positive experience, product-class knowledge, and perceived risks that were included were adopted from Srinivasan and Ratchford (1991). Minor adaptations were made in order to reflect local situation. Likert-type scale of 1 = "strongly agree" to 5 = "strongly disagree" was used. For measuring product-class knowledge, the one item scale of Srinivasan and Ratchford was used. An additional two items were taken from the study of Ailawadi et al. (2001). In addition, the importance of the perceived risk measures, which were adopted from the study of Srinivasan and Ratchford (1991), were also rated based on the importance of the risks to the respondents. The amount of experience was measured by asking respondents to state their level of experience using a 5-point scale of 1 (no experience) to 5 (a lot of experience). Section IV of the questionnaire collected information about the demographic characteristics of respondents.

Sampling

The non-random method of sampling was used. Respondents in the Klang Valley were approached. They were selected using a

¹ Adopted from Health Insurance choices. AHCPR No. 93-0018, December 1992. Retrieved from <http://www.ahrq.gov/consumer/insuranc.htm>

screen question “Have you purchased an automobile or health care service in the past-three years?” If the answer was positive, he/she was requested to participate in the survey. A total of 210 sets of questionnaires were distributed. 195 sets were usable. From this number, 57 of them purchased health care service while 44 purchased a car, and the remaining 94 purchased both the products. For the purpose of data analyses, only those who purchased both the products were considered. This is to control the differences in sample characteristics so that a better understanding on the behavior of younger and older adults in information processing can be obtained. At the same time, we were able to examine if respondents’ search behavior differed significantly with respect to the products included in this study.

Findings

The sample consisted of 66% males and 32% females. Due to the urban nature of the sample, about 50% were Chinese, 27% Malays and the remaining 23% were Indians. The majority of them were young adults, defined as those aged 25 years to 54 years old, making up a total of 48%. Those aged 55 years or older than 55 made up 52% of the total sample. 21% were single while the married constituted 59%. Another 20% were either widowed or divorced.

Sources of Information and their Use

Table 1 presents the research findings. For health care services, the information source that was most used was professional advice followed by family members or relatives, and friends and colleagues before making decisions. This shows that interpersonal sources were widely used in the purchase of health

Table 1
Usage of Information Sources
by Age Group

Information Sources	Total	Young	Old	Significance
Health care services:				
Professional advice	2.76	2.71	2.80	ns
Family members	2.39	2.24	2.53	ns
Friends & colleagues	2.29	2.42	2.16	ns
Catalogues	2.19	2.22	2.16	ns
Books/magazines	2.16	1.96	2.16	ns
Advertisement	1.96	2.00	1.92	ns
Internet	1.79	1.89	1.69	ns
Automobile				
Displays/showrooms	2.67	2.78	2.57	ns
Family members	2.55	2.51	2.59	ns
Friends & colleagues	2.37	2.44	2.31	ns
Catalogues	2.36	2.40	2.33	ns
Salesperson	2.34	2.33	2.35	ns
Advertisement	2.32	2.44	2.20	ns
Books/magazines	2.03	2.20	1.88	ns
Internet	1.65	1.78	1.53	ns

Mean Scores were calculated based on a 4-point Likert Scale; 1 = “Did not Use at all” to 4 = “Use a Lot”.

The higher the score, the more the source was used. Significance tested by using student-t test.

care services. For automobiles, the same pattern could be observed, except that the most widely used source was the use of displays or showrooms for seeking information. The usage of Internet was higher in the purchase of health care compared with the purchase of automobiles. Comparing the young adults and older adults, for the purchase of health care, although professional advice emerged as the most widely used source of information for both groups, the older adults used more of family members and relatives compared to the younger adults, while the younger ones sought more from friends and

colleagues. For the purchase of automobiles, the younger adults rated showrooms and displays as the most used source for information while the older adults relied on family members and relatives. For the younger adults, family members and relatives emerged as the second most used source of information followed by friends and advertisement. For older adults, information from showrooms and catalogues was rated as the second and third most used source of information. Although differences existed between the younger and older adults with respect to usage of information sources, no significant differences could be observed in the purchase of health care services as well as for automobiles.

Importance of Information Sources

For health care services, interpersonal sources were important to the respondents, as the three most important sources of information were professional advice, family members and relatives, and friends and colleagues. The least important was the Internet. Comparing the young and old adults with respect to their importance rating, no significant differences could be observed with respect to the purchase of health care services.

For the purchase of automobiles, displays at showrooms, family members, catalogues, and friends and colleagues were the four most important sources of information. Since automobile is a tangible product, the sources of information tended to show a mix of interpersonal and non-interpersonal sources. The Internet was the least important source of information. Significant differences (marginal) existed between the young and the old with respect to books and magazines, advertisement and salesperson. The older adults rated these three sources as less important than the younger adults.

Table 2
Importance of Information Sources
by Age Group

Information Sources	Total	Young	Old	Significance
Health care services:				
Professional advice	3.87	3.80	3.94	ns
Family members	3.23	3.20	3.27	ns
Friends & colleagues	3.16	3.16	3.16	ns
Catalogues	2.85	3.07	2.65	ns
Books/magazines	2.96	2.87	3.04	ns
Advertisement	2.64	2.76	2.53	ns
Internet	2.67	2.80	2.55	ns
Automobile				
Displays/showrooms	3.56	3.71	3.43	ns
Family members	3.49	3.76	3.24	ns
Friends & colleagues	3.17	3.11	3.22	ns
Catalogues	3.35	3.40	3.31	ns
Salesperson	3.28	3.51	3.06	0.076
Advertisement	3.09	3.29	2.90	0.092
Books/magazines	3.16	3.60	2.76	0.078
Internet	2.65	2.67	2.63	ns

Mean Scores were calculated based on a 4-point Likert Scale; 1 = "Did not Use at all" to 4 = "Use a Lot".

The higher the score, the more the source was used. Significance tested by using student-t test.

Search Behavior

Extent of information search was measured by asking respondents for the number of service providers/stores/outlets visited and the number of visits made prior to purchase. For health care services, the number of service providers visited (mean = 2.14) was less than in the case of automobile purchase (mean = 2.49). With respect to the number of visits made, the same results were obtained. Number of visits to a health care provider (mean = 2.21) was less compared to the case of automobile purchase (mean = 2.31). Com-

paring the search behavior of younger and older adults, no significant difference could be observed with respect to the number of service providers/stores visited as well as the number of visits made prior to purchase.

Hypotheses Testing

In order to provide a richer understanding on information search behavior for automobiles

and health care services, separate tests were conducted, using the same set of sample. Pearson correlation was used to test the relationships between the variables. The findings are presented in Tables 3 and 4. Based on the model presented in Figure 1, findings of this study showed similar findings for services and tangible goods, which supported the findings of Heaney and Goldsmith (1999). Pearson correlation analysis supported four

Table 3
Hypotheses Testing for Health Care Service

Hypotheses	Independent Variable	Dependent Variable	Pearson correlation	Significance	Remarks
H1	Amount of experience	Search Effort	$r = -.181$	$p = .090$ marginal	Supported
H1 (a)	Amount of experience	Perceived risk	$r = .$	ns	Did not support
H1 (b)	Amount of experience	Perceived benefits	$r = -.042$	ns	Did not support
H2	Positive experience	Perceived risks	$r = -.219$	$p = .024$	Supported
H2 (a)	Positive experience	Perceived benefits	$r = -.246$	$p = .017$	Supported
H3	Subjective knowledge	Search Effort	$r = .007$	ns	Did not support
H3 (a)	Subjective knowledge	Perceived risks	$r = -.233$	$p = .024$	Supported
H3 (b)	Subjective knowledge	Perceived benefits	$r = -.114$	ns	Did not support
H4	Perceived benefits	Search Effort	$r = -.256$	$p = .013$	Did not support (direction)
H5	Perceived risks	Perceived benefits	$r = -.005$	ns	Did not support

Table 4
Hypotheses Testing for Automobile

Hypotheses	Independent Variable	Dependent Variable	Pearson correlation	Significance	Remarks
H1	Amount of experience	Search Effort	$r = -.173$	$p = .090$ marginal	Supported
H1 (a)	Amount of experience	Perceived risk	$r = .176$	ns	Did not support
H1 (b)	Amount of experience	Perceived benefits	$r = -.059$	ns	Did not support
H2	Positive experience	Perceived risks	$r = -.169$	ns	Did not support
H2 (a)	Positive experience	Perceived benefits	$r = -.257$	$p = .012$	Supported
H3	Subjective knowledge	Search Effort	$r = .066$	ns	Did not support
H3 (a)	Subjective knowledge	Perceived risks	$r = .064$	ns	Did not support
H3 (b)	Subjective knowledge	Perceived benefits	$r = -.303$	$p = .003$	Supported
H4	Perceived benefits	Search Effort	$r = -.213$	$p = .039$	Did not support (direction)
H5	Perceived risks	Perceived benefits	$r = -.252$	$p = .014$	Supported

of the hypotheses: that amount of experience was negatively correlated with amount of search effort; positive experience and perceived risks was negatively and significantly correlated; positive experience was negatively correlated with perceived benefits; and subjective knowledge and perceived risks were negatively correlated.

Table 4 shows the findings for the purchase of automobiles. Hypotheses that showed concurrence with findings of past research were: (i) negative relationship between the amount of experience and search effort; (ii) positive experience and perceived benefits had a negative relationship; (iii) subjective knowledge was positively correlated with the benefits from search efforts; and (iv) perceived risks was positively related to perceived benefits from search (Srinivasan and Ratchford, 1991; Kiel and Layton, 1981; Punj and Staelin, 1983).

Discussions and Conclusions

This research has generated some interesting findings. Although past research found significant differences with respect to the use of sources of information among the young and the old, this study found no significant differences. Secondly, the external search for information for services and tangible goods was similar, supporting that the model for external search could be applied to tangible goods as well as services (Heaney and Goldsmith, 1999). Thirdly, although past research findings found the relationship between perceived benefits and search effort to be positive, this study found a significant negative relationship for both the products tested. Further investigation by incorporating improved measures of benefits and search efforts (in particular) is warranted.

Findings from this study are useful to policy makers, business communities, as well

as non-profit organizations. In reaching out to their audience, they can be more confident about the sources of information that consumers use and select those that are effective in reaching their target audience. For example, knowing that the Internet has yet to gain its popularity and importance as a source of information even in the urban areas, the use of the Internet as a source of information dissemination has to be supported by other means of information delivery mechanisms.

The major limitation of this study lies with the small size and scope of the study. Therefore, when interpreting findings from this study, caution should be exercised. In addition, this study did not include variables such as evoked set, interests and cost of search in the model. Future research should take into account all the variables so that the interrelationships can be better understood.

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