This is to certify that the
thesis entitled

CONSUMER RESPONSE TO ONLINE RECOMMENDATION
SYSTEMS AND THE MODERATING ROLE OF PRODUCT
KNOWLEDGE AND PRODUCT INVOLVEMENT

presented by

Sungmi Lee

has been accepted towards fulfillment
of the requirements for the

M.A     degree in     Advertising, Public Relations,
and Retailing

Major Professor's Signature

May 9, 2007

Date

**PLACE IN RETURN BOX** to remove this checkout from your record.
**TO AVOID FINES** return on or before date due.
**MAY BE RECALLED** with earlier due date if requested.

| DATE DUE | DATE DUE | DATE DUE |
|----------|----------|----------|
|          |          |          |
|          |          |          |
|          |          |          |
|          |          |          |
|          |          |          |
|          |          |          |
|          |          |          |
|          |          |          |
|          |          |          |
|          |          |          |

CONSUMER RESPONSE TO ONLINE RECOMMENDATION SYSTEMS AND THE
MODERATING ROLE OF PRODUCT KNOWLEDGE AND PRODUCT
INVOLVEMENT

By

Sungmi Lee

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Advertising, Public Relations, and Retailing

2007

# ABSTRACT

## CONSUMER RESPONSE TO ONLINE RECOMMENDATION SYSTEMS AND THE MODERATING ROLE OF PRODUCT KNOWLEDGE AND PRODUCT INVOLVEMENT

By:

Sungmi Lee

The focus of this study is on average ratings provide by two different types of search engine endorsement with different source characteristics, specifically institutions with sponsored results versus non-sponsored results. Using a model of consumer motive attributions and the subsequent creation of source credibility, brand attitude, and purchase intent, this study examines consumer response to sponsored vs. non-sponsored product website recommendations made by search engines. The study manipulated the conditions of the sponsorship of a recommended website and, using involvement and knowledge as measured variables, created a 2 (recommendation systems: Non-Sponsored Results vs. Sponsored Results) x 2 (product knowledge: more vs. less) x 2 (involvement: high vs. low) design. This study expected that subjects who were exposed to Non-Sponsored Results recommendation systems would have more positive attributions about the information than those who were exposed to Sponsored Results recommendation systems. In addition, product knowledge and product involvement were expected to moderate the different effects of the two recommendation systems. The results show that the effects of the recommendation type are dependent on levels of product knowledge and involvement. The type of recommendation influences the perceived credibility of recommendations and purchase intention

This thesis is dedicated to my father, Haenggil Lee, and my mother Kyungran Kim who have given love, support, and encouragement to me.

# TABLE OF CONTENTS

# LIST OF TABLES

# INTRODUCTION

Arguably, the Internet has become a mainstay for consumer information search within many informational domains. The Internet has penetrated 74% of all U.S. households, and as many as 42% of all adults have a broadband connection (Madden 2006). With high speed connections, consumers have immediate access to information that supports purchase decisions through links to e-tailers and other information sources. Indeed, while brick and mortar retailer sales stagnated in 2005, e-tailers experienced a sales boom (National Retail Federation 2005; Oser 2005). According to Jupiter Research, online retail sales were $81 billion in 2005, and are expected to grow to $144 billion in 2010(Oser 2005). Perhaps most useful to consumers who search for online information are search engines that produce results and recommendations for next steps. Sixty-seven per cent of the online population uses a search engine, and 39% of Internet users are shopping (NTIA 2002). Paid placement for top spots in search engine results is becoming a popular form of Internet advertising at the same time that banner advertising is decreasing. According to Jupiter Research, expenditures on all Internet advertising is predicted to grow from $9.3 billion at the end of 2004 to $18.9 billion in 2010, while the revenue from banner advertising decreases (Becker-Olsen 2003). Search engines recommend a list of web sites based on keywords that consumers enter into a search engine query. Once Internet service providers receive a search request, they check with the paid placement provider's database of listings related to the keyword, and then recommend the proper listings as named by the terms of sponsored results (Overture 2003). The listings related to the consumer's entered keywords can provide benefits to advertisers, because consumers are much more likely to take an action when they get to

the site they have selected from a keyword-search results list (Greenberg 2000). Unlike banner ads, sponsored results place a keenly customized and useful click option at the top of search results, and in front of a consumer seeking that information. So, unlike banner ads or pop-ups, the consumer who is searching for this information is interested and primed to pursue the option.

Recommendations made by search engines may be considered a type of online third-party endorsement for an e-tailer each time the e-tailer's website name and link appear as a result of a consumer search. It is not clear if consumers completely understand the paid nature of that placement, thus raising the question of consumer perceptions of the credibility of sponsored search results and their use.

Attribution theory has provided a theoretical framework to explain consumer response to many situations and advertising strategies (Folkes 1988). Third party endorsements, such as those provided by a celebrity, (Moore, Mowen, and Reardon 1994) and sponsorship effects (Rifon et al. 2004) have been explained through the application of consumer attributions as to endorser and sponsor motives. Altruistic attributions of endorsement and sponsorship create source credibility while profit oriented attributions decrease source credibility; source credibility has an integral, intervening role in the development of brand attitudes (Rifon et al. 2004). Source credibility influences how a consumer will process a source's information (Lafferty, Goldsmith, and Flynn 2005; Dean 1999; Wang 2005), since credible endorsers are perceived to provide credible information that can be used to solve their problems (Wang 2005). The same paradigm can be applied to understand consumer response to sponsored search engine results.

The study presented here examines the effects of sponsored vs. non-sponsored search engine recommendations using the attribution/source credibility paradigm. A 2x2x2 experiment with sponsorship as a fixed factor, and product knowledge and product involvement as measured factors, tests the effects of sponsorship on consumer attributions of the search engine's recommendation motives, credibility of the recommendations, and subsequent attitudes toward the brand recommended. The moderating effects of product involvement and product knowledge are also examined.

# LITERATURE REVIEW

## Definitions

### Search Engine Advertising

The Internet now provides various search services for users seeking websites, stores, services, product information, product and service reviews, and so on. Search engines are considered an important element of the distribution channel. They can distribute information about products and services and narrow buyers' choices to a selected assortment through the provision of rank-ordered information and specific items targeted to particular customers (Shugn 2004).

Generally, searches fall into one of four types: 1) navigational, 2) informational 3) transactional, 4) specific question-answering (Overture 2003). An example of the first form is that consumers find information to get to a known site. The case of consumers' searching a list of authoritative sites on a specific topic is an example of the second format. The third form is when consumers seek information with the intention to engage in a purchase transaction. Consumers searching for a postal code or health information are cases of the fourth form. Searching for product and service information is the most popular service of search engines (Overture 2003). Because of the popularity of the search engine as the product information source, providing a promotional message on the search engine should not be overlooked when firms are planning their media strategy. The ordinary format for search engine advertising is a paid placement. According to Overture (2003), paid placement is defined as "purchasing keywords that guarantee placement and ranking listing when users enter that key word." The listing is often acknowledged as a sponsored result because it is placed at the top or side of a search-

4

results page. Sponsored results may have several benefits as an Internet advertising tool. Since sponsored results recommend information related to keywords entered by users and the information is placed on the top of the page, it may attract greater consumers attention than other information.

Sponsorship has been defined as an investment in an activity, cause, or event to utilize its commercial potential (Meenaghan 1983). Previous research found that a sponsor provides financial or other aid to the sponsored organization and in return the sponsored organization offers benefits such as logo placement in advertising or discounts (Daellenbach, Davies, and Ashill 2006). On the other hand, some researchers have found sponsorship has additional benefits as an image building resource (Amis, Slack, and Berrett1999).

Few studies have examined the effects of sponsorship and the underlying theories that explain how sponsorship influences consumers. Previous research that has investigated the objectives and motivations of sponsorships shows that sponsorships have two primary goals: increasing brand awareness (Cornwell, Ray and Steinhard 2001; Gwinner 1997; John and Pham 1999; Stipp1998) and enhancing corporate or brand image (Cornwell, Ray and Steinhard 2001; Gwinner 1997).

Cornwell, Ray and Steinhard (2001) investigated how managers view the value of sponsorship-results marketing in building brand equity over time. In a two-phase survey, 50 managers report on the brand-building capabilities of their sponsorship-results marketing. The results showed that sponsorships under active management can give the difficult task of distinguishing a brand from its competitors and adding financial value to the brand. Additionally, increased leverage that is the use of advertising and promotion to

support the sponsorship significantly add perceptions of differentiating the brand from competitors and adding financial value to the firm. As present in the above study, sponsorship enables consumers to be aware of the sponsoring brand and it is critical to make effective strategy for online advertising. Consistent with previous study, the present study also examines whether the sponsored results section on the search result page can have an effect on consumers' perceptions of the sponsoring brand.

The benefit of sponsored content was noted in the research by Becker-Olsen (2003). She compared the effects of banner advertising and sponsored content on web site communities and their advertisers to investigate the effect of online sponsorship. The study confirmed that sponsored content provides benefits to both web communities and advertisers. In particular, sponsored content produced positive responses toward an advertiser and increased perceptions of customer responsiveness, product quality, category leadership, and purchase intention. Additionally, the messages from sponsored content were processed differently from banner advertising, indicating to communications managers that program objectives should drive the result as to whether sponsored content, banner advertising, or some mixture of the two will be most effective.

Rifon, Choi, Trimble, and Li (2004) investigated the effects of congruence on consumer attitude toward the sponsor of a cause. They examined the mediating roles of consumer attributions of sponsor motive and sponsor credibility. The results revealed the existence of a good fit between a company and the cause it sponsors makes consumers attribute altruistic motives to the sponsor and improves sponsor credibility and attitude toward the sponsor.

Most previous studies suggested that sponsorship has a more positive effect than other types of advertising as sponsorship enhances positive image of sponsored company. However, traditional sponsorship is not like the situation studied here. Sponsorship has been studied mostly in the form of a corporation links itself with a third party, and also as sponsorship-links marketing (Cornwell 2005). In the case of sponsored links, the corporate sponsorship is for itself, thus it is more like an ad, and an ad with a third party, celebrity like, endorser. The consumer seeks a search engine to provide information. When a sponsored result appears, the corporation paying for its placement has sponsored its appearance, but its appearance may appear as an endorsement on the part of the search engine. Like the celebrity that endorses a product, the search engine that generates a top result may be viewed as endorsing the brand. The benefit of sponsored content was noted in the research by Becker-Olsen (2003). The study confirmed that sponsored content produced positive consumer response toward an advertiser and perceptions of responsiveness to consumers, product quality, category leadership, and purchase intention.

To understand the effects of search engine sponsored results, we develop an approach based on the same attribution and source credibility paradigm that has been used to explain celebrity endorser and sponsorship .Moreover, we investigate how product knowledge and product involvement moderate the effects of search engine sponsored results.

The present study proposes that the sponsored results section on a page of search results would be less effective than non-sponsored results because consumers would attribute the motive of sponsored results section to financial incentives provided by the

company to the search engine. Additionally, a sponsored result as applied in the present study has some different features from a traditional sponsorship. As mentioned in the above, sponsored result is a kind of paid advertising, but traditionally sponsorship has been described as the "provision of aid either financial or in-kind to an activity by a commercial organization for the purpose of reaching commercial objectives" (Meenaghan 1983). Traditional sponsorship has the image that supports events or organization; however, sponsored result as presented in this study has the image that sponsoring brand buys the section to advertise their brand. This study assumes that consumers may interpret the motive of sponsored results differently than traditional sponsorship. For example, when a consumer who searches for information about digital cameras looks at the search result page, they may find "A" brand placed in the sponsored results section. This consumer may think that "A" brand paid money to be placed among the sponsored results. The present study will use attribution theory and source credibility theory to explain how consumers interpret the motive of companies or brands using sponsored results.

# THEORETICAL FRAMEWORK

## Attribution Theory

Attribution theory is employed here to explain the different effects between two recommendation systems: sponsored results and non sponsored results. The theory is particularly relevant to this study because it offers a conceptual framework that may provide explanations for differences in outcome-related perceptions by consumers. Attribution theory is used to build a conceptual framework that may help in understanding how recommendation systems may influence consumers' decision making.

Attribution theory is defined as the study of the process by which people results causes with events or outcomes they experience (Snead and Ndede-Amadi 2002). Heider (1958) stated that people are relatively naïve, unskilled observers of events who were attempting to distinguish the causes of what they observed and experienced. On the other hand, Kelley (1973) examined the patterns of errors and biases in the process of attribution. Attributions are the result of consumer cognitive process by which individuals give a main cause or explanation to an observed event (Kelly 1973; Kelley and Michela 1980). As applied to consumer behavior, this means that consumers would make causal inferences and extend a reasonable explanation of why certain marketing-related actions happened. Folkes (1988) explained when, why and how consumers make attributions. She suggested that consumers make attributions about why a product failed, why they switched brands, why a celebrity agreed to appear in an endorsement and why a firm's employees are on strike.

Several researchers who study consumers' reactions to promotional information have suggested that attribution theory provides a viable framework for predicting

consumer response (Gorn and Weinberg 1984; Sparkman and Locander 1980). According to attribution theory, people always want to make sense of the available information as they try to find out its possible causes. The causal inferences that link events through causal relationships are beliefs that allow people to understand and predict the observable world. The external world is made of various effects for which the people are inclined to infer some reasons (Jones and Davis 1965). The case of the recommendation systems is no exception. How people would respond to information from two different recommendation systems depends on their causal analysis of underlying reasons for results. For example, information from the recommendation system can be attributed to the information itself or to some promotional bias.

The concept of attribution theory has been applied in a variety of areas such as consumers' reactions to sponsorship (Rifon, Choi, Trimble, and Li 2004), advertising credibility (Settle and Golden 1974), the effect of other people's opinion about a product (Burnkrant 1982), information processing (Mizerski and Green 1978), and online product recommendations (Senecal and Nantel 2004). These applications may differ, but they all investigated the general area of how consumers process information in order to make purchase decisions (Mizerski and Green 1978).

For example, Rifon et al. (2004) applied attribution theory to describe how consumers view the motive of sponsorship. Parallel with the consumers' perceptions of the motives of spokesperson, consumers may attribute the sponsor company's motive to extrinsic motives such as profit or reputation, and thus consumers can view the sponsor activity as gift-giving or self-promoting (Rifon, Choi, Trimble, and Li 2004).

Senecal and Nantel (2004) used attribution theory to investigate the influence of online product recommendation on consumers' online choices. They used two types of recommendation sources. One type of recommendation source are promoted by commercially oriented third parties and the other source are from independent third party websites. The results of study showed that consumers would attribute more non-product related motivation to commercially oriented third parties than independent third party websites.

Attribution theory was used to see how consumers infer the validity of message claims (Settle and Golden 1974). In accordance with this study, consumers were more confident in the claims and had more favorable attitudes toward the brand when message claims were attributed to the actual characteristics of the product. On the other hand, they were less confident in the claims and had less favorable attitudes toward the brand when they attribute the message claims to the advertiser's desire to sell the product.

Consistent with previous studies, attribution theory is applied to explain how consumers process information from two different types of online recommendations: sponsored results and non-sponsored results. The present study assumes that once consumers see the information on the sponsored results they might make attributions about the motive for information placement to some financial incentive. They might think that the brand paid to have its name posted on the sponsored results. Such results will negatively affect their perceived credibility, attitude toward brand, and purchase intention. On the other hand, consumers exposed to information on the non-sponsored results might attribute the motive to quality because consumer might think that a popular brand with high quality is posted on the top of the non-sponsored results. Such attribution

will positively influence the consumers' perceived credibility and behavior. With this in mind, the following hypotheses are developed for this study:

H1: *Non-sponsored search engine results* will generate fewer consumer attributions of the sponsor's self-serving motives than *sponsored search engine results*.

**Source Credibility**

Mizerski and Green (1978) stated that attribution theory implies that individuals more readily believe, and are more strongly influenced by, information about an entity when they attribute the information to the entity being explained. This study suggested that consumers would perceive that information about a product was more accurate and useful the more they believed the content of the information was caused by the true characteristics of the product being described. However, many consumers may doubt whether the information was caused by actual product performance and filter information from various sources. In particular, consumers may actively filter information on the web because the Internet currently provides such abundant and diverse information and consumers do not know exactly who provided the information. On the Internet, anyone can be an author or provider of information without overarching quality control or editing process (Choi and Rifon 2002). Therefore, investigating consumers' perceived source credibility of information on the web is critical to developing strategies for online advertising.

In an early study about source credibility (Anderson 1971), it was conceptualized as a "weight" that strengthens the value of information in a message. For instance, a consumer who perceives the sponsored results to be credible would have a more positive

reaction to the recommendation by sponsored results while a consumer who perceives less credibility of sponsored results would have less positive reaction to the recommendation by sponsored results. Another study defined source credibility as a message communicator's positive characteristics that affect the recipient's processing of the message communicated (Ohanian 1991). Moreover, such source credibility has been regarded as a cue that determines the persuasiveness of a message (Petty and Cacioppo 1986). Many studies that have investigated the relationship between source credibility and the persuasiveness of a message have examined both the effects and dimensions of source credibility.

Several studies noted that the main effect of source credibility is that consumers perceived source credibility would affect consumers' evaluation of recommendation, attitude change, and behavioral intention. This main effect of source credibility has been confirmed by many researchers. Messages from more credible sources have been found to produce more positive attitudes and stronger behavioral intentions than messages from less credible sources (Atkin and Block 1983; Freiden 1982; Friedman and Friedman 1979; Kamins et al.1989; Ohanian 1991; Petty, Cacioppo, and Schumann 1983; Sternthal, Phillips, and Dholakia 1978). Other researchers pointed out that source credibility affects whether consumers accept the message or not. Fishbein and Ajzen (1975) found that source credibility affected the acceptance of message claims. As such, messages from a more credible source will be accepted more easily and lead to greater attitude change (Johnson, Torcivia, and Poprick 1968; Kelman and Hovland 1953; Miller and Baseheart 1969; Schulman and Worrall 1970; Warren 1969). Consistent with previous studies, the present study proposes that consumer perceived source credibility will be a critical factor

that determines the reaction to recommendation from sponsored results and non-sponsored results. Source credibility has been regarded as a complex phenomenon determined by multiple factors. Therefore, the effect of source credibility depends on various characteristics of the source (Anderson 1971). Especially, he stated that reliability and expertness of the source as two dimensions affecting credibility.

In the early research regarding source credibility, perceived expertise and trustworthiness have been recognized as important and enduring dimensions of source credibility (Hovland and Weiss 1951; Dholakia and Sternthal 1977; Ohanian 1991). Perception of expertise can refer to whether the receiver perceives the source as knowledgeable, and trustworthiness reflects the receiver's belief that the source's opinions are unbiased (Gotlieb and Sarel 1991). These two dimensions of expertise and trustworthiness are important variables in conceptualizing credibility, which can be applied to explain consumers' response to promotional information. Previous research regarding endorsements conceptualized expertise as the knowledge that sources are perceived to possess about the product they are endorsing (Ohanian 1990). In the present study, expertise and trustworthiness are related to consumers' perceived beliefs toward either the sponsored results or non-sponsored results. With this in mind, the following hypotheses are developed for this study:

H2: *Non-sponsored search engine results* will engender greater source credibility for the Website than *sponsored search engine results*.

14

**Effect of Sponsored Search Engine Results on Attitude toward Brand and Purchase Intention**

A consumer's perception of the source credibility can be positively related to the brand credibility. Brand credibility refers to the degree to which the brand as a whole is perceived as credible in terms of three dimensions: expertise, trustworthiness, and likeability (Hoeffler and Keller 2002). According to them, expertise was described as being competent and innovative and being market leader. Trustworthiness was explained as being dependable and keeping customer interests in mind. Likeability was considered as being fun, interesting, and worth spending time with.

A consumer's perception of the credibility of a recommendation can influence the attitude toward the recommended brand. Previous research stated that source credibility can influence the probability that receivers will accept a message claim (Fishbein and Ajzen 1975). Till and Busler (2000) also indicated that perceived source credibility has a positive effect on attitude change and purchase intention. This discussion implies that consumers who perceive more credibility for a recommendation system will have a more positive attitude toward the recommendation, and this will connect with the attitude toward the recommended brand and purchase intention.

Previous studies regarding the credibility of an endorsement have shown that source credibility can influence opinions, attitudes, or behavior though an internalization process that occurs when a consumer is motivated to have an objectively correct position on an issue (Lafferty, Goldsmith, and Flynn 2005). Consumers might learn and adopt the recommendation of the credible recommendation system because they believe information from this recommendation system corresponds to a correct position on an

issue. Consequently, consumers would think more positively about the recommended brand and include it in their evoked set the next time they purchase that product if they perceive the credibility about the recommendation system.

Based on this literature, the present study proposed that consumer's perceived credibility of sponsored results or non-sponsored results will be positively related to brand attitude and purchase intention. With this in mind, the following hypotheses are developed for this study:

> H3: Brands displayed in a *non-sponsored search engine results* section will be perceived as more credible than those displayed in a *sponsored search engine results* section.

> H4: Brands displayed in a *non-sponsored search engine results* section will generate more positive attitudes toward the brand than brands displayed in a *sponsored* search engine results section.

> H5: Brands displayed in a *non-sponsored search engine results* section will create stronger intentions to purchase the brand than bands displayed in a *sponsored search engine results* section.

**Moderating Role of Product Knowledge and Product Involvement**
**Product knowledge**

Consumers' knowledge about products can be a variable that moderates the different effects of online third party endorsements studied earlier. If consumers have prior knowledge, experience or other information about the products, they are less likely to rely on the information from the recommendation (Senecal, Kalczynski, and Nantel

2004). Therefore, consumers who have knowledge about the product may not respond differently to two types of online third party endorsements. Product knowledge is variously characterized by the structure and the content of information stored in memory (Alba and Hutchinson 1987). Previous studies have examined the multidimensionality of product knowledge in a variety of different ways. Scribner and Weun (2001) classified product knowledge into three categories: brand knowledge, attribute knowledge and experience knowledge. On the other hand, Brucks (1985) classified product knowledge into product experience, objective knowledge, and subjective knowledge.

Experience knowledge was described as the awareness of how a product can be used, as well as a consumer's own previous encounters with the brand and those of personal acquaintances (Alba and Hutchinson 1987; Brucks 1986). On the other hand, some researchers defined product experience knowledge as product possession, product – use experience, and information-search experience (Bettman and Park 1980; Johnson and Russo 1984; Park and Lessig 1981). There is a negative relationship between product experience and search for external information because experience knowledge is self-generated, and thus consumers would believe it more than information from advertising or other communications (Swaminathan, Fox and Reddy 2001).

Attribute knowledge is described as the knowledge about which features or attributes of a product exist, regardless of whether the consumer uses these features for decision making (Baker, Hunt, and Scribner 2002). Attribute knowledge is similar to objective knowledge. Previous studies have pointed out that there were negative relationships between attribute knowledge and external search (Beatty and Smith 1987; Brucks 1985). When consumers are knowledgeable about product attributes, they identify

which attributes are problem-solving, and they can limit their search for extra information to less.

Brand knowledge is described as the knowledge a consumer has in regard to the brands that exist in a product category, how brands compare on different attributes, and which brands have which attributes (Brucks 1986; Fiske, Luebbehusen, Miyazaki and Urbany 1994; Selnes and Gronhaug 1986). Previous research conceptualized this knowledge as usable prior knowledge, since it is concerned with information about brands ( Punj and Staelin 1983).

Subjective product knowledge is defined in terms of the extent of consumers' familiarity with the product category. Consumers' subjective knowledge is related to consumers' self-confidence concerning their decision (Brucks 1985). Subjective knowledge is likely to be most related to the product knowledge that is conceptualized in the present study.

The present study will consider consumers' subjective knowledge as a moderating variable that influences the different effects of the two online recommendations. Online recommendation systems such as sponsored results are not likely to provide complex information such as product attribute information. Generally they provide the brand name and product category. Therefore, consumers' objective knowledge regarding product attribute information might not affect their response to information; rather their objective knowledge might be the important variable when they are exposed to complex and detailed information about a product. On the other hand, consumers' subjective knowledge can be a moderating factor that influences the effect of two different online recommendations. If consumers are knowledgeable, they will not be

influenced by the recommendations regardless of the type of recommendation system. However they will respond differently to different types of recommendation systems if they have little knowledge. Overall, consumer knowledge will moderate the effects of the sponsorship of a search engine results for brand credibility, attitude toward the brand, and purchase intention. With this in mind, the following hypotheses are developed for this study:

> H6: Less knowledgeable consumers will experience more brand credibility
>
> for *non-sponsored search engine results* than for brands in *sponsored*
>
> *results.*
>
> H7: Less knowledgeable consumers will have more positive attitudes
>
> toward the brand in *non-sponsored search engine results* than for brand in
>
> *sponsored results.*
>
> H8: Less knowledgeable consumers will have stronger intentions for
>
> brands displayed in *non-sponsored search engine results* than for brand in
>
> *sponsored results.*

**Product Involvement**

Consumers' product involvement is likely to be related to their product knowledge because consumers who are more involved with a product category may be more knowledgeable about the product category. Thus, product knowledge can be closely related with the constructs of product involvement. According to previous studies, there is the correlation between product involvement variable and knowledge, and the correlation is in the .50 to .65 range (Celsi and Olson 1988). However, Sujan (1985)

found that product involvement and product knowledge can independently affect consumers' information processing, even though she found significant correlation (r=.51) between these two constructs.

Product involvement generally has been defined as an individual's perceived relevance of a product based on his or her needs, values, and interests (Zaichkowsky 1985). From this perspective, a consumer's involvement with a product can be the degree to which a person perceives the product to be personally relevant, which means that products have different levels of involvement connected with them for different consumers and in different situations (Baker, Hunt, and Scribner 2002).

Researchers have identified two types of product involvement: enduring involvement and situational involvement (Celsi and Olson1988; Rothschild1979; Zaichkowsky 1985). Situational involvement is related to cues in the consumers' immediate environment such as sales promotion or advertisements. Thus, their level of involvement can change if the situation changes. On the other hand, enduring product involvement symbolizes a continuing concern with a product that consumers bring into a purchase situation (Rothschild 1979). When they have knowledge, experience, and values that make shopping and purchase of the products that are relevant to them, consumers would have enduring involvement. Thus, the involvement for the present study is assumed to be one of enduring involvement. Previous studies showed that consumers who have high involvement with a product process relevant information in more detail than consumers who have low involvement with a product (Chaiken 1980), and they would accept fewer alternatives (Petty and Cacioppo 1981).

Few studies have investigated the relation between enduring product involvement and product knowledge, and these studies also have studied how both involvement and knowledge moderate the effect of information. Some researchers have noted objective product knowledge is more likely to be a factor that effect on information processing Brucks 1985; Seines & Gronhaug 1986), otherwise some research pointed out that subjective product knowledge can more influence on information processing with product involvement because subject knowledge is a motivational factors like confidence in decision making (Park and Moon 2003). These discussions mean that consumers' information processing will be influenced by the product involvement with their subjective knowledge such as a confidence in decision-making. Therefore, product knowledge and product enduring involvement should interactively affect the consumer response to different types of online third party endorsements. With this in mind, the following hypotheses are developed for this study:

H9: Consumers who have low product category involvement will develop stronger brand credibility perceptions for brands displayed in *non sponsored search engine results* than for brands displayed in *sponsored results*.

H10: Consumers who have low product category involvement will develop more positive attitudes toward the brand when the brand is displayed in a *non sponsored results* section than when it is displayed in a *sponsored results* section.

H11: Consumers who have low product category involvement will develop stronger purchase intentions for brand displayed in *non sponsored search engine results* than brands displayed in *sponsored results*.

Finally, it is expected that product involvement and product knowledge will

synergistically affect response to non-sponsored brands.

> H12: Consumers with greater knowledge and product involvement will be least
>
> affected by the sponsorship of brand search engine results; consumers with little
>
> knowledge and product category involvement will be most affected by *sponsored*
>
> *results*.

# METHOD

## Participants

A total of 173, male (42.4%) and female (57.6%) students participated in the study. Subjects were recruited from undergraduate courses at a major Midwestern university. Their ages range from17 to 32 years, with an average age of 21years.

## Design

A 2 (online third party endorsements: non sponsored results vs. sponsored results) x 2 (product knowledge: more vs. less) x 2(involvement: high vs. low) factorial design was employed. Product knowledge and involvement were measured factors. The effects of the sponsored vs. non-sponsored result were tested by creating simulated websites, one with sponsored result and the second with non-sponsored result. The main dependent variables were attributions of the website motives for producing the results, the credibility of the recommendation systems and recommended brand, and credibility and attitude toward the brand in the result, and purchase intention.

A fictitious website search engine and a fictitious brand name were created for the study. Mai was the name used for the search engine and Xenon for the brand. The fictitious site was modeled on the Yahoo! Web site given it reliance on *Non-sponsored results* sections and *Sponsored Results* sections. The product category used was digital cameras. The rationale is that the sample would likely include participants with varying levels of involvement and expertise for digital cameras, thus maximizing variance and ability to test for statistical significance. It also provided for some external validity to the findings given that digital cameras are relatively common place are likely to be used the participants.

## Procedure

The experiment was conducted in a university class rooms. 173 subjects were asked to review the stimulus material containing the image of Web site that has sponsored results or not sponsored results. After few minutes, subjects completed a questionnaire containing the measures in the following order: (1) attribution or recommendation, (2) credibility of recommendation, (3) brand credibility, (4) brand attitude, (5)purchase intention, (6) product knowledge, (7) product involvement, and (9) demographics.

## Dependent Measures

In the present study, expertise is considered as the knowledge that sponsored results or non-sponsored results seem to possess to recommend information to consumers. The present study operationalized trustworthiness as the consumers' perceived belief toward the sponsored results or non sponsored results. In the present study, consumers' subjective knowledge regarding product will be operationalized as the degree of how much they feel confident when they think about the product.

Attribution ($\alpha$=.614) was measured with six, seven-point semantic differential scales (high quality/recommend high quality/mai receive incentives/good recommendation /xenom paid fee/profit related clicking link).Web credibility ($\alpha$=.858) was measured with eight, seven-point semantic differential scales (great experience/skilled in what they do/great expertise/not much experience/trust mai/truthful claims/honest/do not believe).Attitude toward source ($\alpha$=.862) was measured with six-item semantic differential scales (superior product/the best/perform better/reliable/high workmanship/poor quality /dependable/durable).Attitude toward the brand ($\alpha$=.888) was

24

measured with three, seven-point semantic differential scales (favorable/unfavorable, good/ bad, and pleasant/unpleasant) based on the study by MacKenzie, Lutz, and Belch (1986). Purchase intention ($\alpha$=.840) was measured with three, seven-point semantic differential scales (likely/ unlikely, probable/improbable, and possible/impossible) based on the study of MacKenzie, Lutz, and Belch (1986). Product knowledge ($\alpha$=.757) was measured with items, seven-point Likert scales based on the study of Smith and Park's (1992). The detailed items used were "I feel very knowledgeable about this product"; "If a friend asked me about this product, I could give them advice about different brands"; "If I had to purchase this product today, I would need to gather very little information in order to make a wise decision"; and "I feel very confident about my ability to tell the difference in quality among different brands of this product (Sicilia, Ruiz, and Munuera 2005). Involvement ($\alpha$=.927) was measured with ten items, seven-point Likert scale from Zaichkowsky (1994) (interesting /unappealing/ fascinating/not exciting/ involving/not important/relevant /not valuable/ means a lot to me/not needed).

## Table1
## Measures

| Name of Scale | Items | α |
|---|---|---|
| Attribution | high quality | .614 |
| | recommend high quality | |
| | *Mai* receive incentives | |
| | good recommendation | |
| | *Xenom* paid fee | |
| | Profit related clicking link | |
| Web Credibility | Great experience | .858 |
| | skilled in what they do | |
| | great expertise | |
| | not much experience | |
| | trust *Mai* | |
| | truthful claims | |
| | honest | |
| | do not believe | |
| Attitude toward Source | superior product | .862 |
| | the best | |
| | perform better | |
| | reliable | |
| | high workmanship | |
| | poor quality | |
| | dependable | |
| | durable | |
| Attitude toward Brand | very likely | .888 |
| | bad | |
| | negative | |
| | pleasant | |
| Purchase Intention | very likely | .840 |
| | improbable | |
| | possible | |
| Product knowledge | Knowledgeable | .757 |
| | give advice | |
| | gather very little information | |
| | confident | |
| Product involvement | interesting | .927 |
| | unappealing | |
| | fascinating | |
| | not exciting | |
| | involving | |
| | not important | |
| | relevant | |
| | not valuable | |
| | means a lot to me | |
| | not needed | |

**Table2**
**Attribution Factor Analysis Results**

| | Factor Loading | |
|---|---|---|
| Item | Factor 1<br>Quality | Factor2<br>Incentives |
| M2. Recommend high quality | .751 | |
| M4. Good Recommendations | .681 | |
| M1. High quality | .676 | |
| M3. Mai receives incentives | | .817 |
| M5. Xenom paid fee | | .795 |
| M6. Profit related clicking in | | .687 |

## Recommendation Motives and Recommendation Credibility

The motive attribution items were factor analyzed to confirm the anticipated two

factor structure. A principle components factor analysis with varimax rotation confirmed

the two motives with eigenvalues greater than one were examined. The results for the

factor lodging for attribution related variables are provided in Table2.

As shown in the Table 2, factor1 represents a recommendation quality –related

dimension, includes the following variables: It is a high quality brand, search engine only

recommends high quality brands, and with making good recommendations. Factor 2

appears to revolve around incentives and includes the following: Mai receives incentives

from XENOM to place their brand first, XENOM Digital camera paid a fee to Mai to

produce the result first, and Mai receives profits from XENOM each time someone clicks

on the link.

**Table3**
**Credibility Factor Analysis Results**

| Item | Factor Loading | |
| --- | --- | --- |
| | Factor 1 Expertise | Factor2 Trust |
| C3.Great expertise | .792 | |
| C1. Great experience | .713 | |
| C4.Not much experience | .691 | |
| C2.Skilled in what they do | .640 | |
| C6. Truthful claims | | .805 |
| C7. Honest | | .804 |
| C5. Trust Mai | | .637 |
| C8. Do not believe | | .130 |

The 6 credibility items were written to reflect the two dimensions of expertise and trust that have been used in several other studies. A principal components factor analysis confirms the lodging of items on the expected two factors. However, one item, item 8, was dropped due to poor lodging and reduction in the reliability of the scale. The results for the factor lodging for attribution related variables are provided in Table3. As shown in the Table 3, factor1 represents expertise –related dimension, includes the following variables: great amount of experience, skilled in what they do, great expertise, and not have much experience. Factor 2 appears to revolve around trust and includes the following: trust the Mai, makes truthful claims, honest, and not believe what the Mai tells.

# RESULTS

## Hypotheses Tests

### Effect of Sponsored Search Engine Results on Attribution

Hypothesis 1 predicted that n*on-sponsored search engine results* will generate

fewer consumer attributions of the sponsor's self-serving motives than *sponsored search*

*engine results*. ANOVAs were conducted to test this hypothesis. The results did not

indicate a significant effect of sponsored result on attribution dimensions of incentives [F

$(1, 172) = .31$, n.s.] and quality [F $(1, 172) = .74$, n.s.].   See Table 4 for cell means and

standard deviations.   Unlike the predictions, non-sponsored search engine results

($M_{incentive}$=5.11; $M_{quality}$=3.65) and sponsored results ($M_{incentive}$=5.26; $M_{quality}$=3.51)

generated similar attributions of the sponsor's motives.

### Table 4
#### Effects of Sponsored Search Engine Results on Attribution

|            | Sponsored   | Non-sponsored |
|------------|-------------|---------------|
| Incentives | 5.26(1.33)  | 5.11(1.38)    |
| Quality    | 3.51(1.07)  | 3.65 (1.19)   |

## Effect of Sponsored Search Engine Results on Source Credibility

Hypothesis 2 proposed that non-*sponsored search engine results* will engender greater source credibility for the Website than *sponsored search engine results*. ANOVAs were conducted to test this hypothesis. The results did not indicate a significant effect of sponsored result on source credibility dimensions of trust [F (1, 172) = .00, n.s.] and expertise [F (1, 172) = .05, n.s.]. Unexpectedly, sponsored results ($M_{expertise}$=3.62; $M_{trust}$=3.52) and non-sponsored results ($M_{expertise}$=3.50; $M_{trust}$=3.49) engendered similar levels of source credibility for the Website.

**Table 5**
**Effects of Sponsored Search Engine Results on Source Credibility**

|  | Sponsored | Non-sponsored |
|---|---|---|
| Expertise | 3.62 (.99) | 3.50(.99) |
| Trust | 3.52(.86) | 3.49(.95) |

**Effect of Sponsored Search Engine Results on Brand Credibility**

Hypothesis 3 predicted that brands displayed in a *non-sponsored search engine*

*results* section will be perceived as more credible than those displayed in a *sponsored*

*search engine results* section. An ANOVA was conducted to test this hypothesis. The

results did not indicate a significant effect of sponsored result on brand credibility [F (1,

172) = .78, n.s]. See Table 6 for cell means and standard deviations. Unlike the

predictions, sponsored results ($M_{brand\ credibility}$ =3.83) and non-sponsored results ($M_{brand}$

$_{credibility}$ =3.90) engendered similar levels of brand credibility for the Website.

**Table 6**
**Effects of Sponsored Search Engine Results on Brand Credibility**

|  | Sponsored | Non-sponsored |
| --- | --- | --- |
| Brand Credibility | 3.83(.76) | 3.90(.87) |

**Effect of Sponsored Search Engine Results on Attitude toward Brand**

Hypothesis 4 predicted that brands displayed in a *non-sponsored search engine results* section will generate more positive attitudes toward the brand than brands displayed in a *sponsored search engine results* section. An ANOVA was conducted to test this hypothesis. The results did not indicate a significant effect of sponsored result on attitudes toward the brand. See Table 7 for cell means and standard deviations. Unlike the predictions, sponsored results ($M_{brand\ attitude}$ =4.02) and non-sponsored results ($M_{brand\ attitude}$ =4.23) engendered similar attitude toward brand.

**Table 7**
**Effects of Sponsored Search Engine Results on Attitude Toward Brand**

|  | Sponsored | Non-sponsored |
|---|---|---|
| Brand Attitude | 4.02(.86) | 4.23(1.11) |

**Effect of Sponsored Search Engine Results on Purchase Intention**

Hypothesis 5 predicted that brands displayed in a *non-sponsored search engine results* section will create stronger intentions to purchase the brand than bands displayed in a *sponsored search engine results* section. An ANOVA was conducted to test this hypothesis. The results did not indicate a significant effect of sponsored result on intention to purchase the brand.    See Table 8 for cell means and standard deviations. Unexpectedly, sponsored results ($M_{purchase\ intention}$ =3.09) generated a similar level of purchase intention with non-sponsored results ($M_{purchase\ intention}$ =3.24).

**Table 8**
**Effects of Sponsored Search Engine Results on Purchase Intention**

|  | Sponsored | Non-sponsored |
|---|---|---|
| Purchase Intention | 3.09(1.27) | 3.24(1.46) |

**Effect of Sponsored Search Engine Results and Product Knowledge on Brand Credibility**

Hypothesis 6 predicted that less knowledgeable consumers will experience more brand credibility for *non-sponsored search engine results* than for brands in *sponsored search engine results*. An ANOVA was conducted to test this hypothesis. The result did not indicate a significant interaction effect of sponsored result and product knowledge on brand credibility [$F$ (1, 172) = .00, n.s]. See Table 9 for cell means and standard deviations. Unexpectedly, less knowledgeable consumers experienced similar levels of brand credibility for non-sponsored search engine results ($M_{brand\ credibility}$=3.95) and for brands in sponsored search engine results ($M_{brand\ credibility}$ =3.86).

**Table 9**
**Effects of Sponsored Search Engine Results and Product Knowledge on Brand Credibility**

|  | Sponsored | | Non-sponsored | |
| --- | --- | --- | --- | --- |
|  | High Knowledge | Low Knowledge | High Knowledge | Low Knowledge |
| Brand Credibility | 3.81(.84) | 3.86(.66) | 3.85(.94) | 3.95(.81) |

**Effect of Sponsored Search Engine Results and Product Knowledge on Attitude toward Brand**

Hypothesis 7 proposed that less knowledgeable consumers will have more positive attitudes toward the brand in *non-sponsored search engine results* than for brand in *sponsored search engine results*. An ANOVA was conducted to test this hypothesis. The result did not indicate a significant interaction effect of sponsored result and product knowledge on attitudes toward the brand [$F$ (1, 172) = 1.14, n.s]. See Table 10 for cell means and standard deviations. Unexpectedly, less knowledgeable consumers had similar levels of attitude toward the brand in non-sponsored search engine results ($M_{brand\ attitude}$=4.45) and attitude toward the brand in sponsored search engine results ($M_{brand\ attitude}$=4.08).

**Table 10**
**Effects of Sponsored Search Engine Results and Product Knowledge on Attitude Toward Brand**

|  | Sponsored | | Non-sponsored | |
| --- | --- | --- | --- | --- |
|  | High Knowledge | Low Knowledge | High Knowledge | Low Knowledge |
| Brand Attitude | 3.97(1.02) | 4.08(.62) | 3.97(1.12) | 4.45(1.06) |

**Effect of Sponsored Search Engine Results and Product Knowledge on Purchase Intention**

Hypotheses 8 predicted that less knowledgeable consumers will have stronger purchase intentions for brands displayed in *non-sponsored search engine results* than brands displayed in *sponsored search engine results*. An ANOVA was conducted to test this hypothesis. The result did not indicate a significant interaction effect of sponsored result and product knowledge on purchase intentions for brands [$F$ (1, 172) = .96, n.s]. See Table 11 for cell means and standard deviations. Unexpectedly, less knowledgeable consumers had similar levels of purchase intentions for brands displayed in non-sponsored search engine results ($M_{purchase\ intention}$ =3.40) and for brands displayed in sponsored search engine results ($M_{purchase\ intention}$ =3.00).

**Table 11**
**Effects of Sponsored Search Engine Results and Product Knowledge on Purchase Intention**

|  | Sponsored | | Non-sponsored | |
| --- | --- | --- | --- | --- |
|  | High Knowledge | Low Knowledge | High Knowledge | Low Knowledge |
| Purchase Intention | 3.21(1.39) | 3.00(1.14) | 3.04(1.37) | 3.40(1.52) |

**Effect of Sponsored Search Engine Results and Product Involvement on Brand Credibility**

Hypothesis 9 predicted that consumers who have low product category involvement will develop stronger brand credibility perceptions for brands displayed in *non sponsored search engine results* than for brands displayed in *sponsored search engine results*. An ANOVA was conducted to test this hypothesis. The result did not indicate a significant interaction effect of sponsored result and product involvement on brand credibility [$F$ (1, 172) = .11, n.s]. As shown in Table 12, consumers who had low product category involvement developed similar levels of brand credibility perceptions for brands displayed in non-sponsored search engine results ($M_{brand\ credibility}$ =3.79) and those for brands displayed in sponsored search engine results ($M_{brand\ credibility}$ =3.66).

**Table 12**
**Effects of Sponsored Search Engine Results and Product Involvement on Brand Credibility**

|  | Sponsored | | Non-sponsored | |
| --- | --- | --- | --- | --- |
|  | High Involvement | Low Involvement | High Involvement | Low Involvement |
| Brand Credibility | 3.95(.78) | 3.66(.72) | 3.99(.98) | 3.79(.69) |

**Effect of Sponsored Search Engine Results and Product Involvement on Attitude toward Brand**

Hypothesis 10 proposed that consumers who have low product category involvement will develop more positive attitudes toward the brand when the brand is displayed in a *Non sponsored search engine results* section than when it is displayed in a *Sponsored search engine results* section. An ANOVA was conducted to test this hypothesis. The result did not indicate a significant interaction effect of sponsored result and product involvement on positive attitudes toward the brand [$F$ (1, 172) = .21, n.s]. Table 13 indicated that consumers who had low product category involvement developed similar levels of attitude toward the brand displayed in non-sponsored search engine results ($M_{brand\ attitude}$ =4.09) and attitude toward the brand displayed in a sponsored search engine results section. ($M_{brand\ attitude}$ =3.71).

**Table 13**
**Effects of Sponsored Search Engine Results and Product Involvement on Attitude toward Brand**

|  | Sponsored | | Non-sponsored | |
|---|---|---|---|---|
|  | High Involvement | Low Involvement | High Involvement | Low Involvement |
| Brand Attitude | 4.24(.92) | 3.71(.66) | 4.35(1.21) | 4.09(.96) |

## Effect of Sponsored Search Engine Results and Product Involvement on Purchase Intention

Hypotheses 11 predicted that consumers who have low product category involvement will develop stronger purchase intentions for brand displayed in *Non sponsored search engine results* than brands displayed in *Sponsored search engine results*. An ANOVA was conducted to test this hypothesis. The result did not indicate a significant interaction effect of sponsored result and product knowledge on purchase intentions for brands [F (1, 172) = .00, n.s]. As shown in Table 14, consumers who had low product category involvement had similar levels of purchase intentions for brands displayed in non-sponsored search engine results ($M_{purchase\ intention}$=3.24) and for brands displayed in sponsored search engine results ($M_{purchase\ intention}$=3.09).

**Table 14**
**Effects of Sponsored Search Engine Results and Product Involvement on Purchase Intention**

|  | Sponsored | | Non-sponsored | |
| --- | --- | --- | --- | --- |
|  | High Knowledge | Low Knowledge | High Knowledge | Low Knowledge |
| Purchase Intention | 3.09(1.33) | 3.09(1.20) | 3.24(1.56) | 3.24(1.34) |

**Effects of Sponsored Search Engine Results, Product Knowledge, and Product Involvement**

Hypotheses 12 predicted that consumers with greater knowledge and product involvement will be least affected by the sponsorship of brand search engine results; consumers with little knowledge and product category involvement will be most affected by sponsored results. ANOVAs were conducted to test this hypothesis. The results indicated a significant three-way interaction effect of sponsored result, product knowledge, and product involvement on expertise [F (1, 172) = 10.64, $p<.00$] and purchase intentions for brands [F (1, 172) = 3.44, $p<.07$]. See Table 15 and 16 for cell means and standard deviations.

**Table 15**
**Effects of Sponsored Search Engine Results ,Product Knowledge, and Product Involvement on Expertise**

| | Sponsored | | | | Non-sponsored | | | |
|---|---|---|---|---|---|---|---|---|
| | High Involvement | | Low Involvement | | High Involvement | | Low Involvement | |
| | High Knowledge | Low Knowledge | High | Low | High | Low | High | Low |
| Expertise | 3.87 | 3.35 | 3.45 | 3.69 | 3.46 | 3.87 | 4.02 | 3.11 |
| | (1.11) | (1.18) | (.87) | (.62) | (1.05) | (.83) | (.64) | (.98) |

**Table 16**
**Effects of Sponsored Search Engine Results ,Product Knowledge, and**
**Product Involvement on Purchase Intention**

| | Sponsored | | | | Non-sponsored | | | |
|---|---|---|---|---|---|---|---|---|
| | High | | Low | | High | | Low | |
| | High | Low | High | Low | High | Low | High | Low |
| Purchase | 3.22 | 2.93 | 3.09 | 3.09 | 2.89 | 3.80 | 3.52 | 3.13 |
| Intention | (1.45) | (1.34) | (1.14) | (1.32) | (1.38) | (1.71) | (1.37) | (1.35) |

# DISCUSSION

The purpose of the study was to examine consumer response to sponsored vs. non-sponsored product website recommendations made by search engines using a model of consumer motive attributions and subsequent the creation of source credibility, brand attitude, and purchase intent. The results showed that, in the context of this experiment, sponsored result did not have a significant influence on consumers' response to online recommendations. They support the present study's assumption that consumers differently perceive the sponsored result on the search engine with traditional sponsorship. The measures of this study were ones generally used in sponsorship/ endorsement marketing studies (motive attribution, source credibility, attitude toward brand, and purchase intention). Such measures are undoubtedly valuable to advertisers or marketers who are interested in taking advantage of search engine advertising. Especially, understanding the effect of sponsored result placed at search engine is more important because it allows that advertisers and marketers have the chance to develop new advertising device on the Web. The findings of the present study clearly show that both product knowledge and product involvement significantly affect the sponsored result effect on source credibility.

The results of the present study imply that source credibility is the most important factor that online recommendation influences. This finding is consistent with the results of previous studies that have suggested the important role of source credibility in effect of advertising or marketing. Several researchers in the field of advertising and marketing have been interested in the effects of information source because the source credibility is as a critical variable that enhance the persuasive effects of advertising or

42

marketing program. Since perceived source credibility affects message evaluation, attitudes, and behavioral intention, it has been regarded as the factor, which determines the persuasiveness of a message (Petty and Cacioppo 1986).

In particular, the result of the present study supports the importance of source expertise. Source expertise has been described as the extent to that a communicator is perceived to be able to give valid, accurate information (Hovland, Jannis, and Kelley 1953). The present study suggests that source expertise is the critical factor that consumers might consider when they are exposed to online recommendation. In endorsement advertising, source expertise is generally described as the knowledge that an endorser or spokesperson might have to support the claims made in the advertisements (Choi and Rifon 2002). In the present study, source expertise is the accurate and valid knowledge that search engine seems to possess to support the recommendation made in search engine. Moreover, the finding of the present study can provide a practical implication to advertisers or marketers who may consider search engine marketing. When consumers try to find information using search engine, they will consider whether search engine has enough and accurate knowledge regarding the recommendation. If they perceive that search engine have enough knowledge to support recommendation, the recommendation can have positive effect.

Contrary to the previous studies that have found the influence of source credibility on attitude and behavioral intention, this study did not see the positive relationship between source credibility and attitude or behavior.

The results of the present study also suggest that product knowledge has the function that moderates the effects of online recommendation. This finding supports the

results of the previous studies that examine the moderating impact of product knowledge in the effect of information. Previous researches regarding advertising or marketing program have shown that product knowledge plays a moderating role in the effect of advertising or marketing because product knowledge is an important variable that assess the information from advertising or other sources. According to previous studies, product knowledge is an important conceptual variable in consumer behaviors, affecting such as information processing (Hutchinson and Alba 1991; Bettman and Park 1980; Johnson and Russo 1984; Rao and Monroe 1988) and information gathering (Brucks 1985; Rao and Sieben 1992). The result of the present study can provide an implication to people who are in the filed of advertising or marketing. When consumers are exposed to recommendations at search engine, they will assess the recommendation based on their prior product knowledge. Therefore, the effectiveness of the recommendation can be affected by consumers' product knowledge.

Previous researchers have supported that the effect of product knowledge can be related to the effect of the product involvement. The results of this study also find the relationship between the product knowledge and product involvement. The results of the present study also imply the moderating role of product involvement in the effects of online recommendation. This finding is consistent with the results that previous researchers in the field of advertising or consumer behavior have suggested. Several researchers have supported that product involvement has the function to moderate the effect of advertising or marketing program. The results of the present study also suggest major implication to advertisers or marketers who consider search engine advertising. Different levels of involvement with product affect how consumers assess the

information when they are exposed to recommendation made by search engine. Therefore, the effectiveness of the search engine is affected by not only product knowledge but also product involvement.

**Limitations and Future Research**

While the present study has some strong methodological features, there are some limitations of the research presented in this paper. First, the web site "Mai" is fictitious search engine site. Since subject does not have any familiarity with this web site, using fictitious search engine could not provide significant effects on consumers. Therefore, the effect of recommendation on sponsored results and non sponsored results could not be significant. Second, the "Xenom", which is the brand for this study was also fictitious camera brand, and this reduced realism. As this brand is very unfamiliar with subjects, it was difficult to generate credible image of recommendation. Moreover, the product used for this study is digital camera, and this can be the main limitation of the study because subjects might know well about the popular brand of digital camera and thus showing unfamiliar brand consequently decrease decreases the effect of recommendation. In the future study, using a real search engine web site will more find the significantly different effect of recommendations between sponsored results and non sponsored results. However, the response to website should be tested before examining the effect of recommendations. Additionally, the product category for the present study was digital camera, and it has been already very familiar with subjects. Therefore, the recommendation system could not considerably affect their attitude or behavior. In the future study, using product category that is unfamiliar with subjects can make significant effect of recommendation. Therefore, the type of product might be useful variable that

influence the effect of recommendation systems. Future study also should investigate the effect of the recommendations on sponsored results and non sponsored results on brand recall and awareness because displaying brand on the result page of search engine can play role like billboard advertising. Third, this study employed undergraduate students at a major Midwestern university. The results of this study might not be consistent with the study that recruits different types of subjects.

# REFERENCE

Alba, J. W. and J. W. Hutchinson (1987), "Dimensions of Consumer Expertise," *Journal of Consumer Research*, 13 (March):411-454.

Amis John, Trevor Slack, and Tim Berrett (1999), "Sport Sponsorship as Distinctive Competence," *European Journal of Marketing*, 33(3/4),p. 250.

Anderson, Norman (1971), "Integration Theory and Attitude Change," *Psychological Review*, 78, 171-206.

Atkin, Charles and Martin Block (1983), "Effectiveness of Celebrity Endorsers," *Journal of Advertising Research*, 23, 57-61

Baker, Thomas L, James B Hunt, and Lisa L Scribner (2002), "The Effect of Introducing a New Brand on Consumer Perceptions of Current Brand Similarity: The Roles of Product Knowledge and Involvement," *Journal of Marketing Theory and Practice*, 10(4), pg.45.

Beatty, Sharon E and Scott M Smith (1987), "External Search Effort: An Investigation across Several Product Categories," *Journal of Consumer Research*, 14(1), pg. 83.

Becker-Olsen, Karen L. (2003), "And Now, A Word from Our Sponsor," *Journal of Advertising*, 32(2), pg.17

Betteman, James R. and Whan Parj C. (1980), "Effects of Prior Knowledge and Experience and Phase of the Choice Process on Consumer Decision Process: A Protocol Analysis," *Journal of Consumer Research*, 7(3), pg.234.

Brucks, Merrie (1985), "The Effects of Product Class Knowledge on Information Search Behavior," *Journal of Consumer Research*, 12 (June): 1-16.

-----, (1986), "A Typology of Consumer Knowledge Content," *in Advances in Consumer Research, 13, UT: Association for Consumer Research*, pp.58-63.

Burnkrant, Robert E.(1982), "Influence of Other People on Consumers Attributions Toward Brand and Person," *Journal of Business Research*, 10, 319-338

Celsi, Richard L. and Jerry C. Olson (1988), "The Role of Involvement in Attention and Comprehension Processes," *Journal of Consumer Research*, 15 (September):210-224.

Chaiken, S. (1980), "Heuristic Versus Systematic Information Processing and the Use of Source Versus Message Cues in Persuasion," *Journal of Personality and Social Psychology*, 39, 752-756.

Choi, Sejung Marina and Nora J. Rifon (2002), "Antecedents and Consequences of Web Advertising Credibility: A Study of Consumer Response to Banner Ads," *Journal of Interactive Advertising*, 3(1), 1-24.

Cornwell, T Bettina, Donald P Roy, and Edward A Steinard II, (2001), "Exploring Managers' Perceptions of the Impact of Sponsorship on Brand Equity," *Journal of Advertising*, 30(2), pg.41.

Daellenbach, Kate, John Davies, and Nicholas J Ashill (2006), "Understanding Sponsorship and Sponsorship Relationships-Multiple Frames and Multiple Perspectives,"*International Journal of Nonprofit and Voluntary Sector Marketing*, 11(1) pg. 73.

Dean, Dwane Hal (1999), "Brand Endorsement, Popularity, and Event Sponsorship as Advertising Cues Affecting Consumer Pre-purchase Attitudes," *Journal of Advertising*, 28(3), 1-12.

Dholakia, Ruby Roy and Brain Sternthal (1977), "Highly Credible Sources: Persuasive Facilitators or Persuasive Liabilities?" *Journal of Consumer Research*, 3, 223-232.

Fishbein, Martin and Icek Ajzen (1975), Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research, Reading, MA: Addison-Wesley.

Fiske, Carol A., Lisa A. Luebbehusen, Anthony D. Miyazaki, and Joel E. Urbany (1994), "The Relationship Between Knowledge and Search: It Depends," *in Advances in Consumer Research, UT: Association for Consumer Research*, 21, 43-50.

Folkes, Valerie S. (1988), "Recent Attribution Research in Consumer Behavior: A Review and New Directions," *Journal of Consumer Research*, 14 (March), 548-565.

Freiden,Jon B, (1982), "An Evaluation of Spokesperson and Vehicle Source Effects in Advertising," *Current Issues and Research in Advertising*, 77-87.

Friedman, Hershey H. and Linda Friedman (1979), "Endorser Effectiveness by Product Type," *Journal of Advertising Research*, 19 (October), 63-71.

Gorn, Gerald J. and Charles B. Weinberg (1984), "The Impact of Comparative Advertising on Perception and Attitude: Some Positive Findings," *Journal of Consumer Research* , 11(September), 719-727

Gotlieb, Jerry B. and Dan Sarel (1991), "Comparative Advertising Effectiveness: The Role of Involvement and Source Credibility", *Journal of Advertising* ,20(1), 38-46

Gwinner, K. (1997), "A Model of Image Creation and Image Transfer in Event Sponsorship," *International Marketing Review* , 14, 145-158.

Heider, F. (1958). The Psychology of Interpersonal Relations. New York: Wiley.

Hoeffler, Steve and Kevin Lane Keller(2002), "Building Brand Equity Through Corporate Societal Marketing," *Journal of Public Policy & Marketing*, 21(1), 78-90.

Hovland, Carl. I., Janis, I. L. and Kelley, Harold H. (1953), "Communications and Persuasion: Psychological Studies in Opinion Change", New Haven, CT: Yale University Press

Hovland, Carl I. and Walter Weiss (1951). "The Influence of Source Credibility on Communication Effectiveness." *Public Opinion Quarterly*. 15, 635-650.

Hutchinson, J. Wesley, Joseph W.Alba (1991), "Ignoring Irrelevant Information: Situational Determinants of Consumer Learning," *Journal of Consumer Research*, 18(3),325-346.

Johnson, H., Torcivia, J., and Poprick, M. (1968), "Effects oSource Credibility Of The Relationship Between Authoritarianism And Attitude Change," *Journal of Personality and Social Psychology*, 9, 179-183.

Johnson, Eric J.and Edward Russo J. (1984), "Product Familiarity and Learning New Information," *Journal of Consumer Research*, 11(1), 542-551.

Jones, Edward E. and Keith Davis (1965), "From Acts to Dispositions: The Attribution Process in Person Perception," *Advances in Experimental Social Psychology*, 2, 219-66.

Kamins, Michael A., Meribeth J. Brand, Stuart A. Hoeke, and John C. Moe (1989), "Two –sided Versus One-sided Celebrity Endorsement: The Impact on Advertising Effectiveness and Credibility," *Journal of Advertising*, 18(2), 4-10.

Kelley, Harold.H (1973), "The Process of Causal Attribution," *American Psychologist*, 28, 107-128.

Kelley, Harold.H and J. L. Michela (1980), "Attribution Theory and Research," *Annual Review of Psychology*, 31, 457-501.

Kelman, H. and Hovland, C. (1953), "Reinstatement Of The Communicator In Delayed Measurement Of Opinion Change," *Journal of Abnormal and Social Psychology*, 48, 327-335

Kiel, Geoffrey C. and Roger A. Layton (1981), "Dimensions of Consumer Information Seeking," *Journal of Marketing Research*, 18 (May):233-239.

Lafferty, Barbara A., Ronald E. Goldsmith, and Leisa R. Flynn (2005), "Are Innovators Influenced by Endorser Expertise in An Advertisement When Evaluating A High Technology Product?," *Journal of Marketing Theory and Practice*, 13(3), pg.32

MacKenzie, Scott B., Richard J. Lutz, and George E. Belch (1986), "The Role of Attitude toward the Ad as a Mediator of Advertising Effectiveness: A Test of Competing Explanations," *Journal of Marketing Research*, 23, 130-143.

Meenaghan, John A. (1983), "Commercial Sponsorship," *European Journal of Marketing*, 17(7), 5-68.

Miller, G. and Baseheart, J. (1969), "Source Trustworthiness, Opinionated Statements, and Response to Persuasive Communication," *Speech Monographs*, 36, 1-7.

Mizerski, Richard and Stephen Green (1978), "An Investigation into the Causal Links Between Attribution Schema and Decision-Making," *Advances in Consumer Research*, Vol. 5, 126-130.

Moore, David J., John C. Mowen, and Richard Reardon (1994), "Multiple Sources in Advertising Appeals: When Product Endorsers are Paid by the Advertising Sponsor", *Academy of Marketing Science Journal*, 22(3), 234-244.

Ohanian, Roobina (1991), "The Impact of Celebrity Spokespersons' Perceived Image On Consumers' Intention to Purchase," *Journal of Advertising Research*, (February/March), 46-56.

Park,C. Whan and Parker V. Lessig (1981), " Familiarity and Its Impact on Consumer Decision Biases and Heuristics," *Journal of Consumer Research*, 8(2), 223-231.

Park, Chan-Wook and Byeong-Joon Moon (2003), "The Relationship between Product Involvement and Product Knowledge: Moderating Roles of Product Type and Product Knowledge Type," *Psychology & Marketing*, 20(11), 977-997.

Petty, Richard E. and John T. Cacioppo (1981), "Issue Involvement as A Moderator of the Effects on Attitude of Advertising Content and Context" *in Advances in Consumer Research, MI: Association for Consumer Research*, 20-24.

------- and ------- (1986), "Communication and Persuasion: Central and Peripheral Routes to Attitude Change," New York: Springer/Verlag.

-------, ------- and David Schumann (1983), "Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement," *Journal of Consumer Research*, 10(2), 135-146.

Punj, Girish N. and Richard Staelin (1983), "A Model of Consumer Information Search Behavior for New Automobiles," *Journal of Consumer Research*, 9(4), 366-381.

Rao, Akshay R. and Kent B. Monroe (1988), "The Moderating Effect of Prior Knowledge on Cue Utilization in Product Evaluations," *Journal of Consumer Research*, 15 (September):253-264.

Rai, Akshay R. and Wanda A. Sieben (1992), "The Effect of Prior Knowledge on Price Acceptability and the Type of Information Examined," *Journal of Consumer Research*, 19(2), 256-271.

Rifon Nora J., Sejung Marina Choi, Carrie S. Trimble, and Hairong Li (2004), "Congruence Effects in Sponsorship: The Mediating Role of Sponsor Credibility and Consumer Attribution of Sponsor Motive," *Journal of Advertising*, 33(1), 29-42

Rothschild, Michael L. (1979), "Marketing Communications in Nonbusiness Situations or Why It's So Hard to Sell Brotherhood Like Soap," *Journal of Marketing*, 43(2), 11-20

Schulman, Gary and Worrall, C. (1970), "Salience Patterns, Source Credibility, and the Sleeper Effect," *Public Opinion Quarterly*, 34, 371-382.

Scribner, Lisa L. and Seungoog Weun (2001), "Developing a Multidimensional Subjective Product Knowledge Scale," *Working paper*.

Selnes, Fred and Kjell Gronhaug (1986), "Subjective and Objective Measures of Product Knowledge Contrasted," *in Advances in Consumer Research, UT: Association for Consumer Research*, Vol. 13, 67-71.

Senecal, Sylvain, Pawel J Kalczynski, and Jacques Nantel (2004), " Consumers' Decision-Making Process and Their Online Shopping Behavior: A Clickstream Analysis," *Journal of Business Research*, 58(11), 1599-1608

Senecal, Sylvain and Jacques Nantel (2004), "The Influence of Online Product Recommendations on Consumers' Online Choices," *Journal of Retailing*, 80, 159-169.

Settle, Robert B. and Linda L. Golden (1974), "Attribution Theory and Advertising Credibility," *Journal of Marketing Research*, 11(2), 181-186.

Sicilia,Maria, Salvador Ruiz, and Jose L. Munuera (2005), "Effects of Interactivity in a Web Site," *Journal of Advertising*, 34(3), 31-48.

Smith, Daniel C. and C. Whan Park (1992), "The Effects of Brand Extensions on Market Share and Advertising Efficiency," *Journal of Marketing Research*, 29(3), 296-314.

Snead Jr ,Kenneth C. and Atieno A. Ndede-Amadi (2002), "Attributional Bias as a Source of Conflict Between Users and Analysts in an Information Systems Decelopment Context- Hypotheses Development," *Systemic Practice and Action Research*,15(5), pg. 353

Sparkman, Richard M. and William B.Locander (1980), "Attribution Theory and Advertising Effectiveness," *Journal of Consumer Research*, 7 (December), 219-224.

Sternthal, Brian, Lynn W. Phillips, and Ruby Dholakia (1978), "The Persuasive Effect of Source Credibility: A Situational Analysis," *Public Opnion Quarterly*, 42( Fall), 285-314.

Sujan, Mita (1985), "Consumer Knowledge: Effects on Evaluation Strategies Mediating Consumer Judgments," *Journal of Consumer Research*, 15 (June):31-46.

Stipp, Horst (1998), "The Impact of Olympic Sponsorship on Corporate Image," *International Journal of Advertising*, 17(1), 75-88.

Sujan, Mita (1985), "Consumer Knowledge: Effects on Evaluation Strategies Mediating Consumer Judgments," *Journal of Consumer Research*, 15 (June); 31-46.

Swaminathan, Vanitha, Richard J. Fox and Srinivas K. Reddy (2001), "The Impact of Brand Extension Introduction on Choice," *Journal of Marketing*, 65 (October): 115.

Till, Brian D. and Michael Busler (2000), "The Match-Up Hypothesis: Physical Attractiveness, Expertise, and the Role of Fit on Brand Attitude, Purchase Intent and Brand Beliefs," *Journal of Advertising*, 29(3), 1-14.

Wang,A. (2005), "Integrating and Comparing Other's Opinions: The Effects pf Third-Party Endorsements on Online Purchasing," *Journal of Website Promotion*, 1(1), 105-129.

Zaichkowsky, Judith L. (1985), "Measuring the Involvement Construct," *Journal of Consumer Research*, 12 (December), 341-352.