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**Joint Relationship of Four Types of Involvement
(SI, EI, AMI and RI):
Path Analysis Model Combining Mediation and Moderation**

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Path Analysis Model Combining Mediation and Moderation**

by

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Dedication

To my mother for her love and memory

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I am indebted a huge thanks to my wife who has always encouraged me with

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**Joint Relationship of Four Types of Involvement
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The current study addresses the overarching issue of the role that different types of involvement play in cognitive and behavioral processes and attitude formation by investigating 1) if and how SI and EI function jointly to form the level of AMI, 2) how SI, EI and AMI are interwoven to affect the level of RI, 3) the joint role of SI and EI on the routes to attitude formation.

The findings suggest that SI and EI additively influence the level of AMI with stronger role of EI on the formation of AMI. Moreover, while SI and/or EI may affect AMI and subsequent cognitive and behavioral processes such as attention, comprehension, elaboration and information search intention their influences on such cognitive processes are only observed indirectly via the mediating role of AMI. No direct influence of SI and/or EI is observed when AMI is included in the models tested. In

addition, AMI appears to be a robust indicator to the level of attention and information search intention regardless of the types of situational source of personal relevance and product types used, while SI and/or EI provide somewhat mixed results depending on the type of situational source of personal relevance and the type of products considered.

With regard to joint function of SI, EI and AMI on the information search intention, there is an initial evidence of direct interactive influence of SI and EI on information search intention beyond the mediating role of AMI. However, this interactive function is only found via moderated regression analyses rather than ANOVA with a median-split of EI.

Concerning attitude formation via dual-route theories of ELM and HSM, the current study suggests that systematic (central) vs. heuristic (peripheral) processing based on SI is inadequate to account for the two qualitatively different processes in advertising context dealing with laptop computer and digital camera ad.

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CHAPTER I

INTRODUCTION

Four decades ago, Krugman (1965) initiated the work on the involvement concept as an important factor that partitions consumers' advertising information processing into high and low involvement learning group. Since then advertising researchers have demonstrated that involvement accounts for differences in the level of cognitive effort consumers devote to advertising messages. Given researchers' underlying interest in understanding how advertising works and the strong connection between consumers' involvement levels and cognitive efforts, it is not surprising to see an enormous amount of research devoted to this topic (Coulter, Price and Feick 2003; Lutz 1985; MacInnis and Jaworski 1989; Meyers-Levy and Malaviya 1999; Vakratsas and Ambler 1999).

A milestone in the development of involvement research took place when dual route theories in social psychology, the Elaboration Likelihood Model (ELM) and the Heuristic-Systematic Model (HSM), were applied to explain two qualitatively different processes in consumer attitude formation (Petty and Cacioppo 1981, 1986; Petty and Wegener 1998; 1999; Chaiken 1980; Chaiken, Liberman and Eagly 1989; Chen and Chaiken 1999; Eagly and Chaiken 1993; see Chaiken and Trope 1999 for other dual route theories in social psychology). Since then, the concept of involvement has been used to explain not only differences in cognitive and behavioral efforts expended by consumers but also the different routes they take to form attitude.

Empirical research to date has documented the main effects of involvement on such outcome measures as attention, comprehension, elaboration, information search and dissemination (Bloch, Sherrel and Ridgway 1986; Costley 1988; Johnson and Eagly 1989; Muehling, Laczniak and Andrews 1993). In addition, the moderating roles of involvement on central (systematic) and peripheral (heuristic) processes have been documented in extensive empirical studies that, depending on the level of involvement, explain how and why variables such as source attractiveness, trustworthiness, expertise, message strengths, etc., have their intended or unintended influences on attitude formation in the advertising context.

Insights gained from these studies provide valuable knowledge on how advertising works beyond the early persuasion studies (Hovland, Janis and Kelley. 1953) on source, message, recipient, and context variables that assume the particular variable under study has a unidirectional effect on attitude formation (see Petty and Wegener 1998 for a review). In addition to quantitative differences in cognitive efforts, the theoretical frameworks of ELM and HSM synthesize divergent research streams of early attitude formation theories through two qualitatively different types of information processing. As a consequence, these two models have been readily embraced by advertising researchers as useful theoretical frameworks for investigating advertising effects.

While it has been widely acknowledged and accepted among advertising researchers, the empirical evidence of the impact of involvement on attitude formation is not unequivocal (see Johnson and Eagly 1989; 1990; Muehling et al. 1993). In addition to the contradictory findings concerning the predictive efficacy of ELM and HSM in

general, the usefulness of the direct application of ELM and HSM's empirical findings in the advertising and marketing context requires further assessment.

Given that ELM and HSM are not formulated specifically for the advertising context, direct application of ELM and HSM in the advertising context without detailed scrutiny may overemphasize the role of situational involvement (SI) and advertising message involvement (AMI) manipulation in advertising. Specifically, most ELM and HSM-inspired studies in the advertising context manipulate the level of involvement through instructions such as offering a free gift of an advertised product category (high involvement group) versus a free gift of an unrelated product category (low involvement group) while some other studies utilize instructions such as a requirement of a comprehensive exam, often used in social psychology (Petty and Cacioppo 1981b; 1983; Celsi and Olson 1988; Hastak and Park 1990; Rose, Miniard and Bhatla 1990; Miniard, Bhatla and Rose 1990).

Unlike in social psychology, advertising context usually does not generate high level of involvement by situational characteristics alone. Practically, what advertisers can do to increase the level of involvement via situational factors is limited to varying the risk (i.e., fear appeal), new product offerings, brand differentiation via innovative product introduction (i.e., unique selling point), etc.

Thus, although ELM and HSM have provided a strong theoretical base for the role of involvement, the gap between social psychological research and advertising research with regard to the strength of realistic involvement manipulation limits direct applicability of ELM and HSM. In other words, the relatively weak situational

involvement controlled by advertisers may not be sufficient to predict the level of AMI, and subsequently the types of processes and amount of processing efforts. In order to enhance the predictive utility of involvement in advertising, not only SI manipulation but also subjects' enduring involvement (EI), which refers to ongoing interests about the product class, should be considered simultaneously.

In most advertising communication settings, a combination of various involvement factors determines the nature of the information processing of the ads rather than one involvement variable acting in isolation. Although the effects of different involvement variables in the context of advertising effects have been investigated (see Muehling et al. 1993 for a review), there is a shortage of studies examining the potential interactions when multiple involvement variables are combined. Therefore, while it is still important to investigate individual involvement types such as situational involvement (SI), enduring involvement (EI), advertising message involvement (AMI), and response involvement (RI) as an independent (predictor), moderating, mediating, and/or dependent (criterion) variables to complement and clarify previous main effect studies, it is now imperative for research to move beyond the single treatment of involvement studies in advertising research to better reflect the realistic advertising communication context.

In order to address the overarching issue of the role that different types of involvement play in cognitive and behavioral processes and attitude formation, the following questions are raised: 1) What is the relative impact of SI and EI on cognitive and behavioral processes? 2) Is SI alone sufficient enough to account for the level of

AMI? 3) Or, Should EI be taken into account to predict the level of AMI, in addition to SI? 4) If both SI and EI are required to predict the level of AMI, then what are their relative roles? 5) Is SI alone sufficient to moderate the type of processing (central/systematic vs. peripheral/heuristic) consumers utilize to form an attitude about advertised product? 6) Should advertisers consider both EI and SI to predict these processes?

Almost all advertising research to date dealing with AMI has manipulated SI and has treated AMI as a sole function of SI either implicitly or explicitly. However, some of the current research efforts (Celsi and Olson 1988; Laczniak et al. 1999) have acknowledged that AMI is a function of both SI and EI. Because mediation processes (Celsi and Olson 1988) and the potential interaction of SI and EI (Laczniak et al. 1999) were not tested, the precise joint function of SI and EI still requires further investigation.

Conceptually, based on the current understanding of AMI as a function of SI and EI, past AMI research is overly simplistic and misleading in terms of AMI's impact on subsequent information processing of advertising messages. Methodologically, past research omitted the variance that EI shared with AMI. This omission inevitably resulted in treating EI as an error term in analysis and subsequently reducing the sensitivity of the study. As a result, erroneous conclusions such as the overemphasis of SI may have been drawn.

In summary, it is currently acknowledged that AMI plays a central role in explaining the intermediate process between consumers' situational and individual difference factors and their information processing of advertising messages. As a result, it

is important to verify how SI and EI function jointly to form AMI, and how the combination of SI, EI and AMI affects subsequent cognitive processes of advertising messages.

A handful of researchers (Houston and Rothschild 1978; Parkinson and Schenk 1980; Arora 1982; Slama and Tashchian 1987; Beatty, Kahle and Homer 1988; Celsi and Olson 1988; Richins, Bloch and McQuarrie 1992; Dholakia 1998; Laczniak, Kempf and Muehling 1999) have acknowledged the need to clarify the joint relationships of SI, EI, AMI and/or RI. To date, however, there is no consensus as to how SI and EI contribute to the formation of AMI, let alone the formation of RI via SI, EI and AMI. Stated differently, there is considerable uncertainty on how to apply the concept of different types of involvement in predicting AMI and consumers' responses to variations in advertising messages. In addition, it is not known how SI and EI jointly influence the types of qualitatively different processes (central/systematic vs. peripheral/heuristic).

A number of researchers suggest that either SI or EI could be best explained by its mediating role (Arora 1982; Slama and Tashchian 1987; Beatty et al. 1988), while others suggest that they should be treated only as independent (predictor) variables and/or potential moderators for AMI or RI (Celsi and Olson 1988; Richins et al. 1992; Dholakia 1998; Laczniak et al. 1999). Some propose that AMI is a mediator between antecedent involvement types (SI and EI) and consequent type (RI) (Celsi and Olson 1988; Laczniak et al. 1999). Previous studies treating SI and EI as independent variables suggest that the role of SI and EI on AMI and/or RI is either additive or interactive (Andrews et al. 1990; Celsi and Olson 1988; Laczniak et al. 1999; Richins et al. 1992).

Although the literature on involvement types has provided conceptual ground to advance to the point where model development is possible, several recent attempts to test involvement frameworks have not taken full advantage of these conceptual, operational, and statistical advances in their formulation (Arora 1982; Beatty et al. 1988; Celsi and Olson 1988; Dholakia 1998; Laczniak et al. 1999; Richins et al. 1992; Slama and Taschchian 1987). As a result, our understanding of the interrelationship among involvement types is inconclusive at best.

Therefore, the goal of the proposed study is twofold. First, this study examines the interrelationship among four involvement types. Specifically, it examines how antecedent types of involvement such as SI and EI influence cognitive and behavioral efforts (RI) directly and indirectly via the mediating function of AMI. In addition to the mediation model, the moderating roles of SI and EI on AMI and RI are further assessed to explicate the relationship among four involvement types.

While previous moderating studies (i.e., Celsi and Olson 1988) dichotomize continuous enduring involvement for testing potential moderation, a large number of methodologists (Irwin and McClelland 2001, 2003; Maxwell and Delaney 1993; McClelland and Judd 1993) warn against such dichotomization via artificial median split because it will inevitably reduce the detection of moderating effect due to loss of information. This practice also sometimes results in spurious interaction that does not exist (see detailed description about median split in the moderator and mediator section). Therefore, in addition to the theoretical explanations, this study will provide empirical evidence on how different types of involvement are responsible for cognitive and

behavioral efforts by assessing the amount of processes. This will be done via mediation analyses and potential moderation between SI and EI on AMI and RI via a moderated regression analysis, rather than ANOVA.

The second goal of the proposed study is to update and expand the utility of ELM and HSM in advertising context by examining how enduring involvement (EI), in addition to situational involvement (SI), influences the type of processes (central/systematic) vs. (peripheral/heuristic) responsible for attitude formation.

In summary, the proposed study seeks to fill in the gaps of previous involvement research by investigating the impact of the various types of involvement. Consumers bring their varying levels of ongoing product interests (EI) when confronted with advertising messages. Therefore, by examining both SI and EI simultaneously, results from the proposed study provide a clear picture of the role of involvement in determining the cognitive and behavioral efforts consumers are willing to exert in an advertising context.

Furthermore, the proposed study explains how the joint function of SI and EI determines the types of processes by investigating the roles of SI and EI in different routes of processing that are responsible for attitude formation. Therefore, the proposed study provides a framework that permits similarities, differences and interrelationship of different involvement types to become apparent by including both moderating and mediating models in the investigation.

Therefore, the major contribution of this study lies in its explication of joint relationships among involvement types as well as its investigation of the utility of ELM

and HSM in the advertising context by investigating processes responsible for advertising effects via different roles of involvement types.

The proposed study is organized as follows. In Chapter II, literature pertaining to four different types of involvement and dual-route processes is thoroughly reviewed. Chapter III presents hypotheses that will illuminate research goals of this study, which is followed by Chapter IV that discusses the methodology of the study. Chapter V presents the results of hypotheses testing, followed by Chapter VI discussing study findings and direction for future research. Finally, the study concludes with appendices enumerating scales, examples of manipulations and advertisements used in the current study.

CHAPTER II

LITERATURE REVIEW

OVERVIEW

Since its introduction in social psychology (Sherif and Cantri 1947) and advertising (Krugman 1965), involvement has become one of the most studied constructs in advertising and consumer behavior. Krugman's (1965) distinction between high and low involvement learning and his proposition that both levels of involvement can be associated with effective marketing communication have generated great interests among advertising researchers (see Laczniaik et al. 1989; Muehling et al. 1993).

Later, Houston and Rothschild (1978) proposed a more sophisticated framework of involvement by introducing three types of involvement, situational involvement (SI), enduring involvement (EI) and response involvement (RI). Thereafter, the conceptualization, operationalization and empirical research concerning involvement have proliferated. This is evidenced by numerous measurement scales and manipulation techniques developed for operationalization (Bearden, Netemeyer, and Mobely 1999; Bruner and Hensel 1992; Laczniaik and Muehling 1993), as well as comprehensive qualitative summaries (Muehling, Laczniaik, and Andrews 1993) and meta-analyses (Johnson and Eagly 1989; Costley 1988).

However, to some extent, the proliferation of involvement research has resulted in a lack of consensus regarding conceptualization, operationalization and its role in advertising processes. This is partly due to a lack of positioning involvement relative to

the existing body of research in the past. Although not all researchers must adhere to the same definitions of all terms concerning involvement, it is likely that progress in the field could be hampered if the same term is used in different ways by different scholars.

This lack of differentiation relative to other studies could be a major reason for contradictory findings. Thus, it is not surprising to find ‘confusing,’ ‘cumbersome,’ and ‘overwhelming’ in the introduction section of articles dealing with involvement. Needless to say, it is therefore very important to conceptualize and operationalize the concept clearly to avoid misunderstandings of any findings.

In her meta analysis, Costley (1988) suggests that involvement should not be used in a global sense due to the different roles observed depending on how the concept is conceptualized and operationalized. Johnson and Eagly (1989) provide a clearer picture of the role of different involvement types on persuasion. Their study indicates that involvement has different impact on persuasion depending on how it is defined.

After examining studies dealing with involvement, Johnson and Eagly (1989) classify involvement into three categories: value-relevant involvement, outcome-relevant involvement and impression-management involvement (i.e., Zimbardo’s (1960) involvement). The first two types of involvement are in parallel to enduring involvement and situational involvement in advertising and marketing research, respectively (Costley 1988; Houston and Rothschild 1978; Muehling et al., 1993).

Studies concerning value-relevant involvement, in line with ego involvement (Sherif and Cantril 1947), suggest that subjects with high involvement (vs. low

involvement) are less likely to be persuaded. Results of outcome-relevant involvement (situational involvement), in line with most ELM and HSM inspired studies, indicates that the higher the level of SI, the more persuasion is likely only if the argument quality is high, otherwise, the opposite pattern emerges. This finding is in line with the prevailing notion of ELM and HSM. Impression management involvement follows a similar pattern with ego involvement having a relatively weak effect.

The varying impact of involvement depending on how it is defined supports the concerns raised by involvement researchers in consumer research (Andrews, Durvasula, and Akhter 1990; Antil 1984; Batra and Ray 1983; Costley 1988, Muncy and Hunt 1984). Thus, the seemingly confusing concept of involvement can be largely resolved by classifying the different types into more homogenous groups in terms of their conceptualization and operationalization.

CONCEPTUALIZATION OF FOUR TYPES OF INVOLVEMENT

A number of researchers have classified involvement types into more manageable subgroups (Andrews, Durvasula, and Akhter 1990; Antil 1984; Finn 1983; Muehling et al., 1993; Muncy and Hunt 1984). There are four different types of involvement: attention/processing, audience/process, enduring/product, and stimulus-centered/situational. These correspond, by and large, to advertising message involvement (AMI), audience/response involvement (RI), enduring involvement (EI) and situational involvement (SI), respectively.

Houston and Rothschild (1978) were the first researchers to distinguish SI, EI and RI. According to them (1978, p. 184), SI refers to “the ability of a situation to elicit from individuals concern for their behavior in that situation. A situation is high in involvement when most or all people who interact with the situation develop a high level of concern for their subsequent behavior in the situation Thus, situational involvement recognizes that situations differ in their tendency to arouse individuals” The level of SI is determined by product-related stimuli inherent in marketing/advertising strategy and/or tactics such as product performance, cost, complexity, coupons, etc and social psychological stimuli such as presence of relevant others, purchase for personal use vs. for gift (Houston and Rothschild 1978; Celsi and Olson 1988).

EI, on the other hand, derives from an individual’s value system and prior experience with products. When a consumer has prior knowledge of a product and the product relates to their centrally held values, it is likely to lead to a high level of EI. RI refers to “the complexity or extensiveness of cognitive and behavioral processes characterizing the overall decision process” (Houston and Rothschild 1978, p. 185).

In addition to the above three involvement types, Mitchell (1979) introduces a definition of involvement which has been highly influential in subsequent formulation and differentiation of AMI from other types of involvement by advertising researchers. Mitchell defines involvement as “an individual level, internal state variable that indicates the amount of arousal, interest or drive evoked by a particular stimulus or situation” (p.194).

The distinction between SI and AMI lies in the recognition of the role of consumers. SI, as noted by Houston and Rothschild (1978), focuses on advertising/marketing activities such as new product introduction, sales promotion, etc., without regard to the role played by consumers. In contrast, AMI emphasizes the role played by consumers' perception; hence AMI is the perceived personal relevance in a specific situation. Stated differently, SI is analogous to the objective reality external to the individual consumers while AMI is analogous to the perceived reality internal to the individual consumers, derived from the external reality.

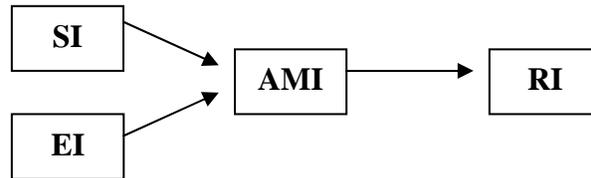
Taken together, these four different types of involvement have stimulated four different streams of studies by subsequent researchers. Given the different approaches taken by researchers, it is important to review how involvement has been defined both conceptually and operationally.

Advertising Message Involvement (AMI)

Mitchell's (1979) point of view about involvement has stimulated the notion of the mediating role of AMI. Specifically, he differentiates involvement state from its antecedent and consequent by treating EI and RI as a potential antecedent and consequence. Thus, AMI as defined by Mitchell is an antecedent to RI, audience involvement and behavioral involvement. Based on his conceptualization, a mediation model (see Figure 1) could be inferred whereby involvement state (AMI) mediates the

link between SI (situational source of personal relevance), EI, and RI. Specifically, SI and EI could be treated as predictor variables while RI is a consequence of AMI.

Figure 2.1 Mediation Model



In addition, his concerns regarding the conceptual and operational definitions of involvement have received enormous interest among researchers. A number of researchers have investigated the role of AMI in advertising context as a moderator and/or mediator variable to account for the difference between high and low involvement processing as well as an intervening variable between predictor and outcome measures.

Cohen (1983), in line with Mitchell's (1979) definition of involvement, views involvement as a state and points out the difference between his definition and process type involvement is as follows: "While it may turn out that certain type of cognitive responses most often occur under high involvement, such observables are indicants of the construct and not the construct itself... So, whether it's a special partitioning of cognitive responses, a count of the number of personal connections, the amount of information correctly recalled... or some other perfectly sensible "window" on information processing activity or outcomes, all such operation tap involvement-mediated consequences and not involvement per se" (p. 325). Thus, he differentiates involvement state from consequent involvement responses such as "attention, cognitive responses and

overt behavior” (p. 326). Antil (1984, p.204) also defines involvement, in line with Mitchell’s state perspective, as “the level of perceived personal importance and/or interest evoked by a stimulus (or stimuli) within a specific situation.”

Baker and Lutz (2000) define AMI as “a motivational construct that influences consumers’ motivation to process information at the time of message exposure” (p.2). One interesting point is that while Baker and Lutz (2000) define AMI as a state variable, the same researchers (1988) also define AMI as a motivational construct in terms of an individual’s cognitive effort expended during processing of ad contents. Thus, it is obvious that Baker and Lutz (2000) consider the current view about AMI as a state by limiting its definition to a state rather than a process variable.

Since the introduction of the term of AMI closely in line with Mitchell’s state-oriented definition, a large number of researchers have investigated its role in the advertising context dealing with attention, comprehension, elaboration, attitude toward ads and attitude toward brands (see Muehling et al. 1993). However, many studies conceptualizing involvement in line with AMI are mostly inferred rather than manifest AMI studies. In other words, there is a shortage of empirical evidence that shows the impact of manipulated involvement on outcome measures is mediated by the perceived level of involvement.

Thus, many AMI studies are based on the speculation that the manipulation of involvement affects the consumers’ perceived level of AMI which in turn influences the level of outcome measures without providing the mediating role of AMI. Inevitably, this

lack of mediation analysis has obscured the clarity of AMI relative to SI by treating them as operationally synonymous. This lack of empirical evidence concerning the perceived personal relevance has led some researchers (Andrews 1988; Andrews and Durvasula 1991; Laczniak, Muehling and Grossbart 1989; Laczniak and Muehling 1993) to call for greater care about manipulation and manipulation checks to ensure that more confident conclusion could be drawn from manipulated involvement research.

Audience/Response Involvement (RI)

Contrary to the “state” oriented definition of involvement by Mitchell (1979) and Cohen (1983), Greenwald and his colleagues (Greenwald, Leavitt and Obermiller 1980; Leavitt, Greenwald and Obermiller 1981; Greenwald and Leavitt 1984) define involvement more in line with Krugman’s (1965) conceptualization and Houston and Rothschild’s (1978) response involvement (Houston and Rothschild 1978) by positioning it as a process type construct derived from the psychological theories of attention and the levels of processing. Specifically, Greenwald and Leavitt (1984) propose four different levels of audience involvement which are preattention, focal attention, comprehension and elaboration.

Audience involvement is defined as “the allocation of attentional capacity to a message source, as needed to analyze the message at one of a series of increasingly abstract representational levels” (Greenwald and Leavitt 1984, p. 591). Greenwald and Leavitt (1984) also acknowledge the dependence of audience involvement on memory

that enhance or limit the level of audience involvement. This recognition of the role played by memory is in line with ELM and HSM where capacity (i.e., distraction) and capability (i.e., knowledge) are factors along with motivation to form elaboration likelihood continuum by consumers during information processing.

According to Greenwald and Leavitt (1984), attentional capacity is a limited resource that must be used to focus on a specific task. Relating AMI to audience involvement, it can be understood that AMI is an antecedent to the level of audience involvement. Specifically, a high level of AMI provides motivational rationale for deliberate information processing, which requires the amount of limited capacity to increase as the cognitive complexity of an advertising message increases. However, as acknowledged by Greenwald and Leavitt (1984), motivation alone can not predict the level of audience involvement precisely due to its reliance on consumers' ability and opportunity to process information at a higher level of audience involvement.

Enduring Involvement (EI)

Zaichkowsky (1985) defines involvement as “the perceived relevance of the object based on inherent needs, values, and interest” (p. 342). This definition is consistent with most enduring involvement studies. In addition, her operationalization of involvement has been widely employed by researchers in consumer behavior.

Elaborative explication of EI, however, has been offered by Bloch and his colleagues (Bloch 1981, 1982; Bloch and Richins 1983; Richins and Bloch 1986). Bloch

(1981, 1982) proposes that EI is an inner state of the individual that reflects a long term product interest or attachment. Thus, EI is differentiated from SI in terms of duration of interests among consumers. In addition, EI is independent of risk-based situations. As a result, EI operates even when there is no perceived risk (i.e., amount at stake, uncertainty etc.) associated with situations because EI is based on consumers' enduring needs and concerns that transcend situational concerns raised by perceived risk and/or benefit.

For example, consumers are likely to form high EI when certain products are highly valued parts of their lifestyle and help project a positive image for others to view (Bloch and Richins 1983). To separate EI with products from products in our daily importance, Richins and Bloch (1986) assert that certain products are important in our daily lives such as detergent, refrigerators, or light fixtures. However, it cannot be said that people are involved with the preceding products just because they are important in our daily lives. Stated differently, this means that although some products are important in people's lives on a daily basis, they are not involving products if people do not think much about them on an ongoing basis.

Thus, one important aspect of EI is not necessarily that something is important, but how important it is in our lives through its relation to our self-expression and hedonic pleasure. This suggests Bloch and his colleagues' conceptualization of EI is narrower than the definitions that tap into risks and mere "importance" aspects of involvement (Laurent and Kapferer 1985; McQuarrie and Munson 1987; Zaichkowsky 1985).

Bloch (1982) further gives extreme examples of high EI consumers such as "wine connoisseurs, cat fanciers, and car enthusiasts who maintain strong ongoing, hobby-like

interests in a particular product class regardless of purchase exigencies” (p. 413). Thus, EI is an abiding part of consumers’ lives independent of risk and situational characteristics.

Situational Involvement (SI)

Although a number of researchers treat SI as synonymously with AMI, distinctions between SI and AMI need to be made. Houston and Rothschild (1978) introduce the term SI to cover the role of situational variables in determining consumers’ cognitive and behavioral processes. SI is in line with situational source of personal relevance (Celsi and Olson 1988). As clearly noted by Celsi and Olson (1988), situational involvement is an antecedent to AMI and cognitive processes experienced by consumers. According to Celsi and Olson (1988), SI is referred to as situational source of personal relevance (SSPR) to distinguish it from AMI. Celsi and Olson (1988) refer to SSPR (SI) as “a wide variety of specific stimuli, cues, and contingencies in a consumer’s immediate environment if these situational factors activate self-relevant consequences, goals, and values and the representation of these stimuli are perceived to be closely associated with those important consequences, goals and values” (pp. 211-212).

Thus, Celsi and Olson’s (1988) definition of SI does not take into consideration the varying perception of consumers who have the same situational source of personal relevance. Rather, much like heuristic and peripheral cues, SI is only concerned with a specific situation that may affect the perceived level of personal relevance. Thus, SI is not

the same as AMI, which is a perceived personal relevance that varies among consumers even within the same situational context.

It has been widely acknowledged among researchers that SI affects the level of perceived personal relevance of consumers. This is evidenced by many experimental researches that manipulate the situational context of consumers' advertising information processing environment. By manipulating SI and observing the differences between the groups tested in experimental contexts, researchers have attributed the effect to consumers' perceived level of personal relevance in the ad. However, the direct test of the impact of SI on consumers' perceived personal relevance has not been examined in most involvement research. Rather, most researchers test the effect of SI on a consequent type of involvement such as audience involvement or response involvement, and infer that SI influences the perceived personal relevance experienced by consumers, which in turn affects the variations in dependent measures.

Thus, stronger empirical evidence could only be possible by studies that take AMI into consideration through a mediation model. To date, there have been only two empirical studies that examine the role of SI on AMI (Celsi and Olson 1988, Laczniak et al. 1999) via mediation analyses. These two studies provide empirical evidence that SI, along with EI, is an antecedent to the level of AMI.

Although some researchers have synonymously treated SI manipulation and AMI, it is more appropriate to treat them separately. Specifically, SI should be treated as an antecedent to AMI. Because of a lack of differentiation between SI and AMI, many

previous studies suffer from the lack of precision regarding roles of involvement on information processing and behavioral processes. As pointed out by Laczniak et al.(1999) as well as Andrews et al. (1990), manipulation alone cannot satisfactorily vary the level of AMI due to the function of individual difference factors such as EI.

Given the current conceptualization and empirical evidence concerning AMI, it is more appropriate to include EI in addition to SI manipulation in a study and measure AMI to have a better understanding concerning the role of AMI on cognitive processes. Or, at least, SI and EI should be included in the same study dealing with AMI to appreciate the additional insights gained by EI on advertising information processing.

In summary, the four different types of involvement provide different but interrelated aspects of motivational concerns of consumers in an advertising context. Situational and enduring involvement caused by and/or derived from different antecedents such as situational risk or benefits and ongoing interests inherent to consumers' value and self-expression, respectively, influence the level of advertising message involvement during exposure to an ad, which in turn influence the level of processing efforts such as audience and response involvement. Thus, seemingly very different types of involvement are interwoven so that conceptually it is critical to consider all four types of involvement in a framework to fully explain the role of involvement in the advertising context.

OPERATIONALIZATION ISSUES OF INVOLVEMENT

Of the four involvement types, enduring and situational involvement have advanced researchers' understanding of involvement by providing operationalization of involvement constructs both in experiments and survey research. However, as noted earlier, diverse positions taken on the conceptualization of the construct have resulted in a number of different measurement scales and manipulation techniques of enduring and situational involvement, which require further assessment.

Measurement Issues

Lastovicka and Gardner (1979) develop a measure that assesses enduring involvement based on the idea of ego-involvement from social psychology. They suggest that involvement has two dimensions, normative importance and commitment. However, subsequent researchers have pointed out that although commitment is related it should not be a dimension of involvement (Mitchell 1979).

The operationalization of ego involvement in social psychology has often been about selecting groups that differ with respect to certain issues. In other words, the groups chosen not only differ on the level of enduring involvement (ongoing concerns and interests) but also on their stance on an issue (commitment). From this distinction, it can be inferred that enduring involvement in consumer behavior research is a more global term that deals with a product category as a unit of concern meanwhile the commitment dimension in ego involvement could be understood as a more specific term such as brand commitment, which concerns not only product category but also a specific brand within

the product category. This study only focuses on EI rather than ego involvement due to the current acceptance of EI, which is different from brand commitment.

One of the highly utilized measurement scales is developed by Zaichkowsky (1985) whose Personal Involvement Inventory (PII) scale meets such psychometric properties as internal consistency, test/retest reliability, content validity, and criterion-related validity by and large. Zaichkowsky (1985) utilizes a large number of products to test the sensitivity of her scale and provides initial evidence for its viability for assessing enduring involvement for a large number of products. Based on the results of her study, she concludes that the PII scale is indeed flexible enough to be used for a large number of products, and even suggests that the PII scale could be used for advertisement and purchase decision involvement, just as Zaichkowsky (1993) noted, “PII scale presents a measure of the state of involvement (with products, with advertisements, or with situations)” (p. 262). Thus, the PII scale appears to be a general measure of involvement rather than a scale specifically tailored to enduring involvement.

However, a number of researchers (Higie and Feick 1989; McQuarrie and Munson 1987; 1992) have proposed a modified measure of Zaichowsky’s PII scale after noticing a number of potential problems inherent in the PII scale. McQuarrie and Munson (1987), in their first attempt to modify the PII scale, compare the PII scale with Laurent and Kapferer’s (1985) Consumer Involvement Profiles (CIP), which is based on a sample of French housewives. They point out that while Zaichkowsky’s PII scale treats involvement as a unidimensional concept, CIP treats it as multidimensional concept that

consists of “perceived importance of the product,” “perceived risk associated with the product purchase,” “symbolic or sign value attributed by the consumer,” and “hedonic value of the product” (Laurent and Kapferer 1985, p.43).

As noted earlier, perceived risk associated with purchase is specifically related to SI rather than EI, which is independent of the role of perceived risk. Thus, by adopting Laurent and Kapferer’s (1985) perspective concerning the involvement concept, McQuarrie and Munson (1987) confound EI with SI in their conceptualization of involvement rather than limiting the operationalization to EI.

Based on their conceptualization, McQuarrie and Munson (1987) revise the PII scale by adding dimensions of risk and sign-value suggested by Laurent and Kapferer (1985). In addition, they delete some items (i.e., needed, essential, etc) that may be confounded with attitudinal aspects other than involvement per se. They comment that “there is suggestive evidence that interpretational confounds does occur when PII is used to scale the involvement level of various product categories. Zaichkowsky found laundry detergent to be the third most involving product among the 14 she examined... but remains troubling, given the exactly opposite results reported by Kapferer and Laurent (1984) and Laurent and Kapferer (1985)” (p. 37).

This same concern has been raised by Richins and Bloch (1986) when they conceptually elaborate on the concept of enduring involvement by noting that daily commodities such as light fixtures are not part of EI. Thus, in line with Richin and Bloch (1986), McQuarrie and Munson (1987) point out the insensitivity of some items in

Zaichowsky's (1985) PII scale that may erroneously overestimate involvement levels without being experienced as interesting among consumers.

Given that their conceptual stance differs from Zaichkowsky (1985), McQuarrie and Munson (1987) provide a three-dimensional scale that encompasses importance, pleasure and risk with internal consistency estimates of .85, .90 and .67, respectively. In addition, in their predictive validity assessment, these three dimensions vary in their predictive validity in brand commitment, brand differentiation, information search and choice complexity. Specifically, the importance dimension is highly correlated with brand commitment and brand differentiation, whereas the pleasure dimension was more responsible for the variation in information search and choice complexity. Thus, McQuarrie and Munson's (1987) predictive validity assessment suggests that the pleasure or the hedonic aspect of involvement is important when it comes to information search and decision complexity, which is often considered as a consequence for high enduring involvement.

Higie and Feick (1989) develop an involvement scale that is specifically tailored to EI, defined as a stable trait that is motivated by the degree to which the product relates to the self and/or the pleasure received from the product. Thus, Higie and Feick's (1989) view of involvement is narrower than the ones suggested by Laurent and Kapferer (1985), McQuarrie and Munson (1987) and Zaichkowsky (1985). Higie and Feick (1989) limit the conceptual and operational definition of involvement to enduring aspect of concerns and interests while excluding situational characteristics like perceived risk.

Specifically, Higie and Feick (1989) view EI as an ongoing concern or interests due to products' relatedness to an individual's self-expression and pleasure derived from thoughts or usage of products. Based on this conceptualization, they develop a scale adding self-expression dimensions while deleting other dimensions used in previous operationalizations except for the pleasure aspects. Higie and Feick (1989) provide a ten-item semantic differential type scale that taps into two dimensions that are specifically relevant for EI. Their further assessment of internal consistency, item-to-total correlations, as well as criterion-related validity provides initial evidence of its viability for measuring EI. For the purpose of this study, we follow the conceptual definition of Richins and Bloch (1986) and the operational definition of Higie and Feick (1989).

Manipulation Issues

For a theoretical development based on an experimental research tradition, researchers have often manipulated subjects' levels of SI and AMI. A large portion of advertising research dealing with involvement has been centered on SI and/or AMI, by manipulating the level of consumers' perceived personal relevance and the amount and direction of attention or elaboration to account for different processes consumers use to form attitudes.

Given the proliferation of studies manipulating involvement constructs, a number of researchers (Andrews 1988; Andrews and Durvasula 1991; Andrews, Durvasula and Akhter 1990; Laczniak, Muehling and Grossbart 1989; Laczniak and Muehling 1993)

have noted problems inherent in previous manipulation studies that lack manipulation and confounding checks. This is further complicated by the disagreement in terms of conceptual and operational definition dealing with SI and/or AMI. In general, there are three views on involvement manipulation.

First, a number of researchers (Gardner 1983; Gardner, Mitchell and Russo 1978; Lacznia, Muehling and Grossbart 1989; Mitchell 1980) who subscribe to Mitchell's (1979) view of AMI as an attentional capacity and brand/non brand processing strategy construct, have manipulated the level of AMI by instructing subjects to focus on two different aspects of advertisements. Specifically, those in the high AMI group are asked to pay attention to the message aspects of the ads while the ones in the low AMI group are told to pay attention to the execution of the ads.

Second, researchers following in the ELM and HSM tradition view AMI as a motivational construct concerning personal relevance. Thus, manipulation of AMI is carried out by varying the level of the personal relevance of the ads. Instead of varying attentional and directional aspects directly, subjects are led to believe one of the following: a free gift of an item in the same product category as seen in the ad vs. a free gift of an item in an unrelated product category or asked to imagine immediate vs. no purchase needs. Third, researchers who view AMI as a process construct such as cognitive elaboration manipulate via instructions asking memorization of the advertising messages or not (see Lacznia and Muehling 1993).

However, there is some conceptual ambiguity concerning the first stream of AMI manipulation. As pointed out by Johnson and Eagly (1989), manipulation varying the

direction of attention should be understood as manipulation of distraction (p. 214) rather than a motivational construct. It is indirect distraction that instructs subjects to focus on one aspects of the ad more than other aspects, rather than varying the level of interest to the ads. Therefore, in order not to obscure the clarity of AMI, opportunity to process such as distraction should not be used to vary the level of advertising message involvement.

The distinction between distraction and motivation could be illustrated in a hypothetical situation. Suppose a consumers' level of motivation to process information is the same while there is a variation in distraction experienced by consumers. In this case, consumers who are not distracted will show high level of AMI based on the operational definition of AMI proposed by Mitchell and his colleagues (Mitchell 1980; Gardner 1983; Gardner, Mitchell and Russo 1985).

Thus, because advertising message involvement is a motivational construct rather than an opportunity to process, it is somewhat problematic to equate levels of attention and brand processing strategy to advertising message involvement. Instead, they should be treated as a consequence of advertising message involvement along with other factors that may affect the level of attention.

In ELM and HSM, brand vs. non-brand processing strategies could be understood as central (systematic) vs. peripheral (heuristic) processing. Thus, although Mitchell (1979) differentiates his conceptual definition from process-oriented involvement (i.e., Krugman 1965; Houston and Rothschild's response involvement 1978) the operationalization of AMI has blurred the distinction between the two different types.

In order to clearly observe the effect of AMI (more specifically SI), it is important to manipulate personal relevance itself rather than the potential consequences of it, which could be equally affected by factors other than involvement. In addition to the inherent problem of manipulating distraction rather than motivation, there is one more point that needs attention.

It confounds the variation of AMI by asking subjects to do two qualitatively different tasks. The manipulation of AMI should vary the degree rather than type of information processing in order to study the difference between high and low AMI conditions. As indicated by high and low terminology prevalent in involvement research, it is the quantity of AMI rather than types of AMI that are studied.

In summary, much of the manipulation utilized in the first stream in AMI research does not manipulate the level of motivation to process the advertisement. Instead, these studies manipulate the direction of information processing and intensity of attention. Thus, what subjects pay attention to is not guided by motivational state but rather by subjects' opportunity to view or the direction to the information in the ads.

More conceptually consistent manipulation of SI and/or AMI in terms of motivational construct is offered by ELM and HSM inspired studies (Chaiken and Maheswaran 1994; Haugtvedt and Wegener 1994; Petty and Cacioppo 1981; Petty, Cacioppo and Schumann 1983; Zeynep and Maheswaran 2000). In those studies the level of motivation to process ads is manipulated by varying the level of personal relevance.

Early works (Petty and Cacioppo 1981; Petty, Cacioppo and Schumann 1983), however, either did not report manipulation checks or report a manipulation check that

assesses the recall of gift choice item, which is unrelated to assessing personal relevance. Not surprisingly, Petty and Cacioppo (1981) found unexpected results, contrary to their hypotheses. They explain that the source attractiveness in the shampoo ads is not more persuasive under the low involvement condition due to different role of source cue under high and low involvement conditions.

Specifically, they postulate that source cues under high involvement could be utilized as arguments rather than peripheral cues. Although their speculation could be a reasonable account for their findings, this post hoc explanation is subjective and reduces the merit of their findings. Contrary to the early works lacking manipulation checks, Chaiken and Maheswaran (1994) provide manipulation checks that tap into the level of perceived personal relevance via such items as highly vs. not at all involving and highly vs. not at all interested.

However, most empirical evidence based on ELM and HSM has manipulated subjects' perceived level of involvement by varying such social issues as school policy of comprehensive exams for students' own school vs. a remote university, which are of little relevance in advertising and marketing. Thus, although much theoretical advancement concerning the role of involvement has been achieved based on ELM and HSM, it should be recognized that social psychology and advertising differ with regard to the object of study (social issues vs. advertising messages) and the context of involvement. Thus, the validity of manipulation often utilized in social psychology needs to be questioned in advertising field.

More realistic manipulation of personal relevance in advertising context has been empirically compared by Laczniak and Muehling (1993). They examine six pairs of manipulation techniques commonly utilized in advertising research. These pairs directly tap into three streams of AMI manipulation noted earlier which are distraction-oriented, personal relevance and memorization, respectively.

Based on a number of manipulation checks that assess not only perceived personal relevance but also consequent measures such as levels of attention, and processing strategies, two out of six manipulation pairs perform as expected on all manipulation check measures, while only one meets both manipulation and confounding checks. The manipulation that successfully meets all the criteria set by Laczniak and Muehling (1993) tap into the notion of personal relevance manipulation. In the manipulation, high AMI group is told that the advertised product differ in important performance characteristics and asked to assume they need the product soon, while low AMI group is led to believe there are no differences among brands and they do not have immediate needs of the product. As a result of their empirical findings, Laczniak and Muehling conclude that both manipulation and confounding checks are necessary for sound operationalization of AMI.

Thus far, each type of involvement has been examined in detail to set the background understanding of involvement types. However, as noted earlier, each type of involvement is jointly interwoven so that a clear understanding of the quantity of cognitive and behavioral efforts exerted and the types of cognitive processes utilized by consumers requires a combination of different types of involvement. In the following

section, previous empirical studies that examine joint function of involvement types are reviewed in detail.

JOINT RELATIONSHIPS OF INVOLVEMENT

The first conceptual framework of joint relationships of involvement types is proposed by Houston and Rothschild (1978) with three different types of involvement, namely, SI, EI and RI as noted above. Given this framework, a number of researchers (Parkinson and Schenk, 1980, Arora, 1982, Slama and Tashchian 1987, Beatty, Kahle and Homer 1988, Richins, Bloch and McQuarrie 1992, Dholakia, 1998) have investigated empirically how the three different types are related to each other. Further, by acknowledging the importance of AMI in a framework of involvement, Celsi and Olson (1988) and Laczniak et al. (1999) propose involvement frameworks by adding AMI into the S-O-R paradigm. Below is a review of empirical studies dealing with interrelationships among different types of involvement.

Joint Functions of Involvement within S-O-R Paradigm

Within the S-O-R paradigm, strictly following three different types of involvement (SI, EI and RI), consumer researchers have examined the interrelationships of SI, EI and RI. This is done either through causal analyses whereby either SI or EI has been treated as a mediator or through testing three potential joint roles of SI and EI on RI (Additive, Interactive Magnification and Interactive Ceiling function). These two different streams of studies provide somewhat different perspectives on how SI and EI

influence RI. While the mediation stream of research suggests that there is a causal relationship among SI, EI and RI, the other stream, however, treats SI and EI as independent (predictor) variables for RI.

Mediation Stream of S-O-R Paradigm

Following the S-O-R paradigm of learning theory in psychology, Arora (1982) tested the interrelationship among SI, EI and RI by treating EI as a mediator between SI and RI (SI→EI→RI). In addition to the indirect effect of SI on RI via EI, Arora hypothesizes that SI directly affect RI beyond its indirect effect. His finding reveals that SI influences EI, which in turn influences RI, while the influence of SI on RI is minimal. Thus, His hypotheses are partially supported empirically.

Arora's (1982) study, however, is criticized by Beatty, Kahle and Homer (1988) conceptually and methodologically. First, the direction from SI to EI is questionable in that, unlike SI, EI is ongoing concerns with products which are very unlikely to be influenced by SI in a single study. Stated differently, the causal link from SI and EI is problematic to even conduct causal analyses.

Second, Beatty et al. (1988) point to the methodological problem caused by very small sample size of 96 for structural equation modeling employed by Arora (1982). In addition to the concerns raised by Beatty et al. (1988), there is a lack of consistency between conceptualization and statistical tests used. Specifically, Arora (1982) conceptualizes the relationship between SI and EI as follows: “the effects of situational

involvement in the presearch stage are enhanced by higher levels of enduring involvement” (p.507).

Close examination of the above conceptualization reveals that instead of proposing causal relationship between SI and EI, Arora is suggesting potential moderation of EI on the relationship between SI and EI. To put it another way, the strength of the relationship between SI and RI is dependent upon the level of EI.

Similar to Arora’s study (1982), Slama and Taschchian (1987) test the same causal links (SI→EI→RI) for a shampoo purchase. Specifically, they hypothesize that there is a direct effect of SI and EI on RI. In addition, similar to Arora (1982), they treat EI as a mediator between SI and RI. Their study also provides similar results to Arora’s (1982) study, which suggests a minimal direct link between SI and RI, thus failing to support the direct link from SI to RI.

In contrast, Beatty, Kahle and Homer (1988), test an involvement model by treating SI as a mediator between EI and RI. In addition, they hypothesize that the link between EI and RI is possible only through SI. Thus, they suggest a complete mediation of SI on the relationship between EI and RI (EI→SI→RI) and conclude their hypothesis is supported.

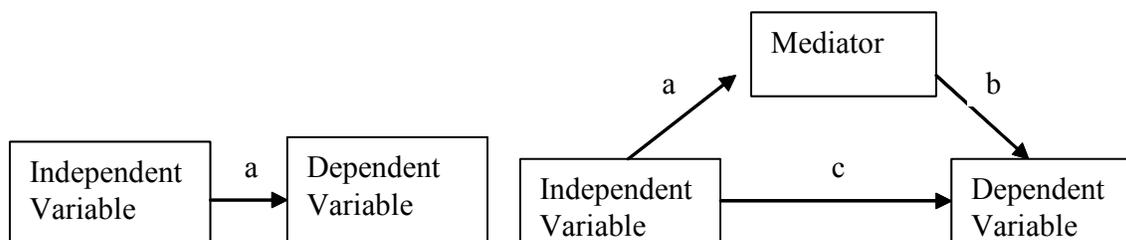
There are, however, a number of issues that question the validity of the findings from the stream of research on mediation above. According to Baron and Kenny (1986), in order to test mediation analysis, three different causal links need to be estimated.

First, regressing the dependent variable on the independent variable is required to establish that there is an effect that may be mediated (Figure 2a). Second, regressing the

mediator on the independent variable is required to see the potential causal link from independent variable to mediator (Figure 2b). Third, regressing the dependent variable on both the mediator and independent variables is required to see mediation effects (Figure 2b).

Based on these requirements, studies by Slama and Tashchian (1987) and Beatty et al. (1988) do not satisfy the rationale for mediation analysis. Stated differently, independent variable (SI for Slama and Taschchian (1987); EI for Beatty et al. (1988)) does not significantly affect RI in the first place (Figure 2a). In addition, SI, rather than manipulation, is measured in all of the studies above. Thus, it is susceptible for confounding with other factors. For example, Beatty et al. (1988), operationalize SI with relatively enduring concerns of consumers (i.e. “Generally choosing the right brand of soft drink is important to me”), which appears more appropriate for enduring involvement measures.

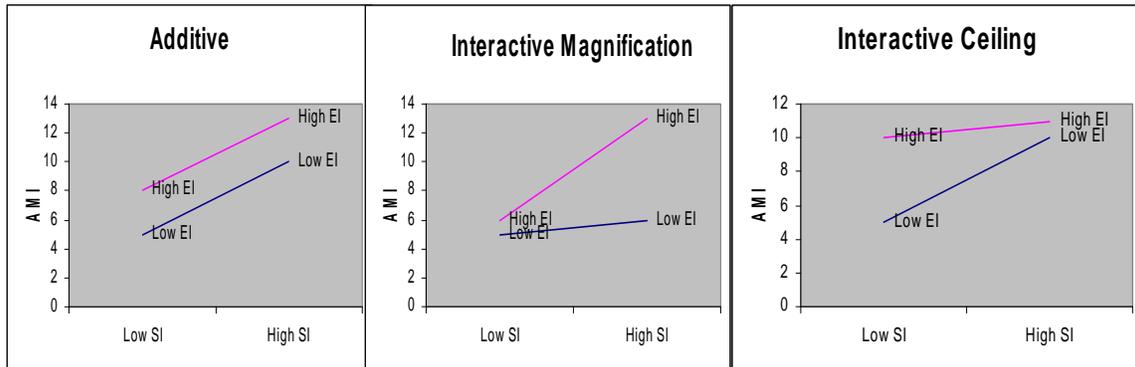
Figure 2.2: Simple Effect and Mediation Model



Joint effect of SI and EI on RI in S-O-R Paradigm

In contrast to the mediation stream of the S-O-R paradigm, a number of researchers treat SI and EI as independent variables that affect RI through three different combined roles of SI and EI on RI. According to Richins et al. (1992), there are three potential functions of SI and EI on RI: additive, interactive magnification and interactive ceiling function (see Figure 2.3 for a graphical illustration).

Figure 2.3: Additive and Interactive Model



First, several researchers (Celsi and Olson 1988; Peter and Olson 1987; Laczniak et al. 1998; Richins, Bloch & McQuarrie, 1992) support the additive function, where both EI and SI influence RI independently (Figure 2.3a). Stated differently, there are only main effects of SI and EI on RI. This model suggests that response involvement level is a straightforward function of SI and EI without any interaction involved in the equation. Thus, $RI=SI+EI$ (Richins et al. 1992).

In addition, two different interactive functions have been proposed by Richins et al. (1992). One type of interaction function is termed “interactive magnification function,” where high levels of EI magnify the responses of consumers who have high SI. Interactive magnification function suggests that the role of SI as an independent variable on RI is most likely to occur when the consumer’s EI is also high (Figure 2.3b). The other type of interaction function occurs where EI and SI interact negatively to form RI. Interactive ceiling function (Figure 2.3c) suggests that consumers with high EI are likely to have a high level of RI for most situations, while those with low EI will show high levels of RI when they are highly involved situationally (Dholakia 1998). Thus, interactive function could be stated as: $RI = SI + EI \pm (SI \times EI)$ (Richins et al. 1992). Interactive magnification function is observed when there is a positive effect of SI and EI interaction, while interactive ceiling function is expected if the interaction term is negative.

This disagreement about the role of SI and EI on RI either as mediator or independent variables could be better understood by the introduction of AMI or felt involvement into the S-O-R paradigm (Celsi and Olson, 1988; Laczniak et al., 1998). Thus, it is now acknowledged by some involvement researchers that AMI is a mediator while SI and EI work as independent (predictor) variables affecting RI through AMI. Thus, the involvement framework could be stated in the symbolic form: $RI = f(EI, SI, AMI)$, $AMI = f(SI, EI)$. That is, RI is a function of SI, EI and AMI where AMI works as a mediator while AMI is a function of SI and EI. However, as noted above, exact function of SI and EI on AMI is not clear, nor is the function of SI, EI and AMI on RI.

The Mediating Role of AMI in S-O-R Paradigm

To date, only two studies have provided empirical evidence for the function of SI and EI on AMI and/or RI stated above. By introducing the term “felt involvement,” in line with AMI in their involvement framework, Celsi and Olson (1988) provide a clear conceptualization of joint functions of involvement types.

While they suggest that SI and EI indirectly affect RI through the mediation of AMI, their empirical test, however, excludes the direct test between AMI and RI as a mediator. Rather, they only examine the direct effect of SI, EI and (SI x EI) on AMI and RI in two separate analyses. They do so by treating AMI and RI as dependent measures of SI and EI, thus leaving out the direct assessment of the mediating role of AMI on RI.

Instead, Celsi and Olson (1988) treat joint function of SI and EI as equivalent terms of AMI. However, treating the joint function of SI and EI as AMI could be somewhat misleading since empirical evidence from Celsi and Olson’s study suggests that less than 50% of the variance in AMI is shared with the joint function of SI and EI. Thus, although implicitly they have inferred a linkage between AMI and RI, their study lacks explicit linkages among SI, EI, AMI, and RI. Nonetheless, their study provides initial empirical evidence that SI and EI affect AMI which may affect RI.

Recently, Laczniak et al. (1999) also empirically examine relationships among SI, EI, AMI and RI. However, their study did not examine the potential interaction effects of SI and EI on AMI and RI. Instead, they only test the potential interaction among AMI, EI and knowledge on RI. Thus, Laczniak et al’s analyses do not allow the interaction effect

of SI and EI on AMI and RI. While they provide empirical evidence of mediation from SI and EI through AMI to RI, more complete causal analyses concerning the joint relationships of SI, EI, AMI, and RI have yet to be conducted. Thus, their conclusion that “situational and enduring effects on response involvement may be additive, not interactive” is premature based on their empirical testing.

DUAL-ROUTE PROCESSES

Central (Systematic) and Peripheral (Heuristic) Processing

The hallmark of the ELM and HSM is their attempt to specify cognitive and motivational factors that determine when attitude formation is likely to be mediated by systematic (central) or heuristic (peripheral) processes (Petty and Cacioppo 1986; Petty and Wegener 1998; Chaiken, Liberman and Eagly 1989; Chen and Chaiken 1999). Of many postulates and assumptions underlying ELM and HSM, a large number of conceptual and empirical studies in advertising and consumer research are based on two qualitatively different processes, namely central (systematic) and peripheral (heuristic) processes.

Both ELM and HSM postulate that central (systematic) processing requires motivation and/or the ability to process information. Specifically, ELM posits that central processing serves as the key mediator of attitude formation when motivation and/or ability are high. Central processing refers to the extensive and effortful information

processing activity aimed at scrutinizing and uncovering the central merits of the issue or advocacy. Similarly, when engaging in systematic processing, people “scrutinize all informational input for its relevance and importance to their judgment task” (Chaiken et al., 1989, p.212). Therefore, systematic processing is compatible to the central processing outlined by the ELM.

Since it is not possible for consumers to attend to every communication situation carefully, both ELM and HSM make least-effort assumption; that is, they assume that perceivers tend to process information minimally unless they are motivated to do so (Chen and Chaiken 1999). Thus, in case there is a lack of motivation or ability to process information, “peripheral” or “heuristic” processing is likely to occur (Chen and Chaiken 1999).

ELM posits that peripheral processing, conceptualized broadly as the product of a variety of mechanisms, causes attitude formation in the absence of argument processing. When engaged in heuristic processing, people retrieve from memory learned rules (e.g. ‘expert’ statements can be trusted) that allow them to evaluate a message without carefully processing all of the information presented. Therefore, heuristic processing is a subtype of peripheral processing.

More importantly, however, central (systematic) and peripheral (heuristic) processing are relative. They are governed by the level of elaboration likelihood that is derived from motivational and ability factors. Thus, essentially, consumers who are exposed to advertisements are likely to experience both central (systematic) and

peripheral (heuristic) processing at different degrees depending on their level of motivation and ability.

The major idea of these two qualitatively different processes is that there is a tradeoff between central and peripheral processing (Petty and Wegener 1998) or attenuation of heuristic cues under high elaboration likelihood conditions even though heuristic cue information has been processed. In contrast, under low elaboration conditions consumers are more likely to rely on heuristic cues to form attitudes regardless of message cogency.

Using the conceptualization of central (systematic) and peripheral (heuristic) processing, a large number of studies provide empirical evidence supporting these two qualitatively different processes, which account for the differential effects of peripheral (heuristic) cues and message contents among consumers of varying levels of motivation and ability (see Eagly and Chaiken 1993; Petty and Wegener 1998).

Empirical Evidence for Dual-Route Processing

The empirical evidence for these two qualitatively different processes largely comes from two different methodological approaches. The first approach is based on critical tests matching patterns of the model postulates and the observed outcomes (Wegener, Priester, Fabrigar, Petty and Cacioppo 1993, p. 349; Eagly and Chaiken 1993, p. 322). The second approach is based on mediation analyses, which is a more direct assessment for the underlying mechanisms for attitude formation.

The first methodological approach based on “pattern matching” has an extensive amount of empirical evidence. Under different levels of elaboration likelihood derived either via involvement or capacity related factors, subjects differ in their reliance on the information in the message (message arguments vs. heuristic cues) to form attitudes. For this type of research, researchers (Petty and Wegener 1998; Chen and Chaiken 1999) manipulate peripheral (heuristic) cues and argument strength orthogonally. Most empirical evidence suggests that subjects in high elaboration conditions are influenced by argument strength variation alone while subjects in low elaboration conditions are affected by the valence of heuristic cues regardless of argument strength. These findings are typically taken as evidence that heuristic (peripheral) cues and argument quality influence attitude through two qualitatively different processes.

Based on these findings, researchers in ELM and HSM could infer that subjects in the high elaboration condition form attitudes via central (systematic) processing, while subjects in the low elaboration condition form attitudes via peripheral (heuristic) processing. That is, the different effect of source vs. argument strength depending on the level of elaboration likelihood (i.e., involvement, capacity, etc) supports the assumption that high elaboration likelihood results in central (systematic) processing as a mediator to form subsequent attitude. In contrast, low elaboration likelihood leads to reliance on peripheral (heuristic) processing as a psychological mechanism.

Although the first methodological approach serves as a useful tool for the detection of different effects of messages vs. peripheral cues depending on the level of

elaboration likelihood, the reliance on the inferences based on the outcomes does not provide a detailed understanding of processes responsible for attitude formation.

For example, as noted earlier, Petty and Cacioppo (1981) note that source attractiveness affects both high and low involvement conditions contrary to their hypothesis. Then, they attribute this unexpected finding to the role of source attractiveness as a message argument in high involvement condition contrary to its role as a peripheral cue under low involvement condition. This post hoc interpretation undermines the utility of the first stream methodological approach when the outcome does not match with the hypotheses, which are based on ELM and HSM.

Mediation analysis is required to discover the processes responsible for attitude formation. Thus, a detailed explanation of these two qualitatively different processes comes from mediation analyses based on the cognitive responses subjects generate during exposure to advertising messages. Earlier works on mediation, however, employ correlation analyses that suggest message attribute thoughts are strongly associated with attitude formation under high elaboration condition (i.e., Petty and Cacioppo 1979).

Stronger analysis comes from path analyses utilizing a series of multiple regression analyses. A number of researchers have tested mediating processes responsible for attitude formation in conjunction with different heuristic cues such as brand name, country of origin and source credibility (i.e., Maheswaran, Mackie and Chaiken 1992; Maheswaran 1994; Chaiken and Maheswaran 1994; Gurhan-Canli and Maheswaran 2000). Utilizing brand name as a heuristic (peripheral) cue, Maheswaran et al. (1992) investigate mediation processes responsible for attitude formation depending on the level

of situational involvement. They reveal that more attribute related thoughts are produced by high involvement group than the one with low involvement while more brand name related thoughts are produced by low involvement group than high involvement group. In addition, valence of product attribute thoughts (positive minus negative) is only influenced by product attribute variation among high SI subjects. In contrast, low SI subjects do not differ in their valence of attribute thoughts regardless of product attribute strength variation.

Perception of brand name influences the level of attitude positively under low SI condition which suggests heuristic processing. Perception of product attribute strength affects attitudes under high involvement condition, suggesting systematic processing. However, it has not been reported whether product attribute perception influences the level of valence of attribute thoughts (cognitive response), which in turn affects attitude. This would have provided stronger empirical evidence for systematic processing.

Stronger supports for the two qualitatively different processes are provided by Chaiken and Maheswaran (1994) based on the mediation analyses. They provide additional evidence for two qualitatively different processes depending on the level of involvement. More source related thoughts are generated by low SI group than high SI group. On the other hand, subjects in the high SI condition express more product attribute-related thoughts. Source credibility affects the attitudes of low SI group regardless of message strength.

With regard to mediation assumption, Chaiken and Maheswaran (1994) indicate that under low SI condition, source credibility perception affects attitudes both directly

and indirectly through the valence of source-related thoughts (heuristic processing). Subjects in high SI condition, however, in conjunction with strong vs. weak message manipulation, utilize valence of cognitive thoughts concerning the product attribute information to form attitude formation.

In addition to the role of systematic processing, perception of source credibility also directly influences product attitudes. Further analysis reveals that this additive effect of heuristic processing is only likely when source information and message strength are in the same direction (i.e., positive source and strong message).

In contrast, when source information and message strength go in opposite directions (i.e., negative source credibility and strong argument), it is likely that careful scrutiny of the message attenuates the impact of heuristic cues under high elaboration condition while low SI subjects only form attitude based on heuristic cues and subsequent perception of the heuristic cues, regardless of message strength. This is in accordance with most ELM and HSM empirical findings in the past.

The index used for peripheral (heuristic) processing differs somewhat among studies. While Maheswaran (1994) use valence of source-related thoughts, Maheswaran et al. (1992) and Petty, Schumann, Richman and Strathman (1993) utilize the perception of source cue and/or source cue itself. Still others, Chaiken and Maheswaran (1994) utilize both perception of source cue and valence of source related thoughts as an index for peripheral (heuristic) processing.

In short, while extensive empirical evidence exist for two qualitative different processes responsible for attitude formation, surprisingly few empirical studies tackle the

more detailed mediation analyses to provide a direct assessment for psychological mechanisms underlying such outcomes. Although a number of researchers have examined mediation analyses in the past, the full model that includes predictor, mediator and criterion measure has rarely been done (see Mongeau and Stiff 1993; Fabrigar, Wegener, Priester, Petty and Cacioppo 1993 for discussion).

CHAPTER III

RESEARCH HYPOTHESES

The major goals of the proposed study are to investigate 1) if and how situational involvement (SI) and enduring involvement (EI) function jointly to form the level of advertising message involvement (AMI), 2) how SI, EI and AMI are interwoven to affect the level of response involvement (RI), 3) the joint role of SI and EI on the routes to attitude formation. The proposed study will provide the needed understanding on both the moderating and mediating effects within an involvement framework including SI, EI, AMI and RI. Further, it will provide an understanding of the boundary conditions for the moderating role of SI on the route to attitude formation, with the addition of EI as a potential moderator.

Previous studies dealing with AMI have mostly manipulated SI without considering the impact of the joint role of EI and SI. However, research shows that AMI is not only influenced by SI manipulation, but it is also a partial function of EI beyond the role played by SI (Celsi and Olson 1988; Lacznik et al. 1999). Thus, by manipulating SI alone, current understanding of AMI is largely limited. While a number of researchers have speculated potential interaction effects of SI and EI on the level of AMI (Andrews et al.1990; Celsi and Olson 1988; Lacznik et al. 1999), to date, empirical evidence mainly supports or speculates the straightforward additive function of SI and EI on AMI (Celsi and Olson 1988; Lacznik et al. 1999).

As noted by previous researchers (Andrews et al. 1990; Celsi and Olson 1988; Laczniaak et al. 1999), the additive function of SI and EI on AMI is overly simplistic to accept without rigorous scrutiny. First, to date, there are only two empirical studies (Celsi and Olson 1988; Laczniaak et al. 1999) that test the joint function of SI and EI on AMI. While Celsi and Olson's (1988) study assesses both main and interaction effects of SI and EI on AMI via ANOVA, Laczniaak et al. (1999) test only main effects of SI and EI on AMI by leaving out the interaction term in multiple regression analysis. Second, the dichotomization of the continuous independent variable, EI, inevitably reduces the power of detecting the interaction effects in Celsi and Olson's study (1988). Taken together, it is premature to accept that AMI is an additive function of SI and EI. As suggested by researchers, it would provide richer understanding of the role of SI and EI by investigating the conditions that are conducive for either additive or interactive function (Bloch and Richins 1983; Celsi and Olson 1988; Laczniaak et al. 1999).

Unfortunately, there are no theoretical accounts provided in the literature that specify the conditions under which additive or interactive function of SI and EI are likely to operate on the level of AMI. Considering that there are different levels of EI among consumers, they are likely to have variations in SI before their exposure to an advertisement. It is this difference in SI that may provide different joint function of SI and EI on AMI.

Specifically, there are varying degrees and types of SI in an advertising context, which vary their ability to create a homogeneous group within and heterogeneous group between treatment and control condition conditions. Variances, which are not accounted

for by the impact of SI on the level of AMI, are relegated to error terms, resulting in less sensitive tests than the one including closely related variables. Thus, the inclusion of EI in the study of AMI is necessary for sensitive investigations. Also, it is a better reflection of realistic advertising exposure situation for consumers.

In the proposed study, two sets of manipulation of SI are used to test the joint function of SI and EI on AMI (see methodology section for a detailed description). The first set of manipulation of SI creates differential conditions on products' unique offerings and local availability. The second set of manipulation of SI creates two conditions of situation that differ immediate purchase needs in addition to product unique offering and local availability variation.

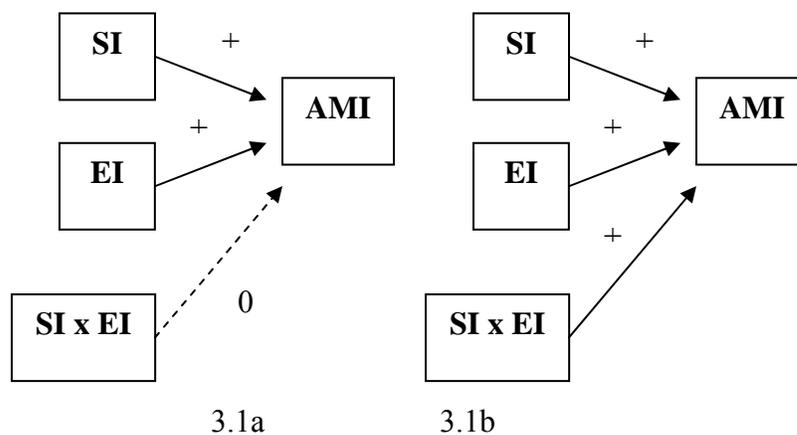
The rationale for the interactive function of SI and EI on AMI is that even the same situation is differently perceived by subjects depending on the level of EI. That is, even though the situational characteristic that creates SI is the same for high EI and low EI subjects, subjects with high EI are more likely to perceive the situation personally relevant than are subjects with low EI. For example, when car enthusiasts encounter information that a well-known auto manufacturer introduces new features of automobile, they are likely to perceive the news more personally relevant than those with low EI. However, when subjects are considering a purchase of the product of interest, the level of SI affecting AMI is less likely to depend on the level of EI, given very high levels of the perceived risks and benefits created by SI. Based on this rationale, the following hypotheses are suggested:

H1: The level of AMI is the joint function of SI and EI:

H1a: AMI is determined only by the positive main effects of SI and EI.

H1b: AMI is determined not only by the positive main effects of SI and EI, but also by their positive interaction.

Figure 3.1: AMI



* the dotted line indicates no statistically significant effect in H1a

RI has been defined as “the complexity or extensiveness of cognitive and behavioral processes characterizing the overall consumer decision process” (Houston & Rothschild, 1978, p.158). Hence, it subsumes audience involvement (Greenwald and Leavitt 1984) and behavioral involvement, “time and/or intensity of effort expended in the undertaking of behaviors” (Stone 1984, p. 210), which are cognitive process and behavioral process, respectively.

Amount of attention, comprehension and the level of elaboration during advertising exposure are used for testing different types of audience involvement while

information search intention will provide the behavioral aspect of RI. Based on the ELM (Petty and Cacioppo 1981, 1986; Petty and Wegener 1998; 1999) and the HSM (Chaiken 1980; Chaiken, Liberman and Eagly 1989; Chen and Chaiken 1999; Eagly and Chaiken 1993), motivational level produced by personal relevance increases the level of cognitive effort.

In addition, both HSM and ELM suggest that personal relevance activates the desire to exert high levels of mental effort while the ability construct could affect the elaboration of message information (see also Celsi and Olson 1988). Thus, people with high levels of personal relevance are likely to devote a great deal of effort, such as amount of attention and comprehension, to processing the ads. Further, the proposed study speculates that the direct effects of SI and EI on the amount of attention are negligible since the influences of SI and EI on outcome measures are mediated through AMI for their impact on the amount of attention and comprehension. This is because the SI manipulation is intended to vary perceived personal relevance, not other factors that may affect attention level.

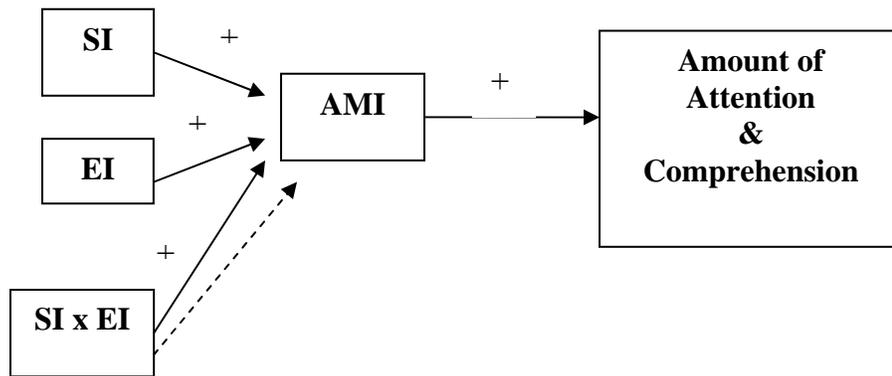
With respect to EI, a variable that possesses both motivation and prior knowledge, it is suggested that the motivational state is responsible for the level of attention and amount of comprehension while knowledge and/or ability is responsible for elaboration processes where encoding of the incoming messages are required to integrate his/her knowledge of the product category (Celsi and Olson 1988; Chen and Chaiken 1999; Petty and Cacioppo 1981, 1986; Petty and Wegener 1998; 1999). That is, the ability aspects of EI are not likely to be activated until the cognitive processes reach the elaboration stage.

Thus, only the motivational aspect of EI will exert its influence on the amount of attention and comprehension subjects devote to processing advertising messages. As a result, the following hypotheses are proposed:

H2: As the level of AMI increases, the amount of attention paid to advertisements increases.

H3: As the level of AMI increases, the amount of comprehension effort increases.

Figure 3.2: Attention/Comprehension=f (SI, EI, AMI)



* the dotted line indicates an insignificant impact of SI x EI on AMI followed by SI manipulation #2 while SI x EI interaction is significant based on SI manipulation #1

Elaboration, however, requires not only motivation but also consumers' ability to go beyond the information given and to integrate that information with existing knowledge. While SI is only concerned with the temporal motivational concerns of consumers, EI does possess the ability aspect due to its ongoing concerns with products over a long period of time. As succinctly summarized by Celsi and Olson (1988), "Both EI and consumers' domain knowledge concern knowledge stored in long-term memory.

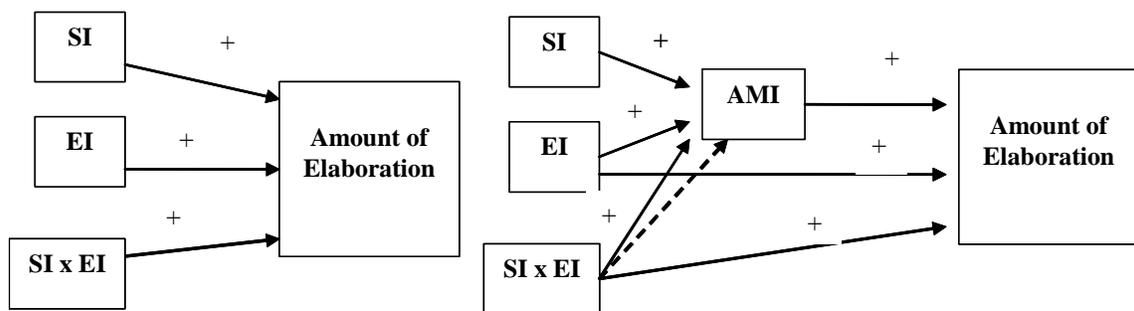
EI is knowledge that links salient product characteristics to self-related goals and values. Domain knowledge is the general semantic and episodic knowledge regarding the product” (p. 213). Thus, in contrast to SI, EI includes relatively stable, enduring structures of personally relevant knowledge, derived from past experience and stored in long-term memory.

As a result, during the elaboration process, the predictive power of SI affecting the level of elaboration is enhanced with consumers having high EI. Thus, in order to have a high elaboration level, high SI is required but it is not sufficient without the level of EI. Close examination of Celsi and Olson’s (1988) hypotheses also suggest this. Therefore the following two hypotheses are proposed:

H4a: The amount of elaboration is a function of SI, EI and the interaction of SI and EI (see Figure 3.3).

H4b: The amount of elaboration is a partial function of the mediating role of AMI and direct and positive moderating effects of EI.

Figure 3.3: Elaboration=f (SI, EI, AMI)



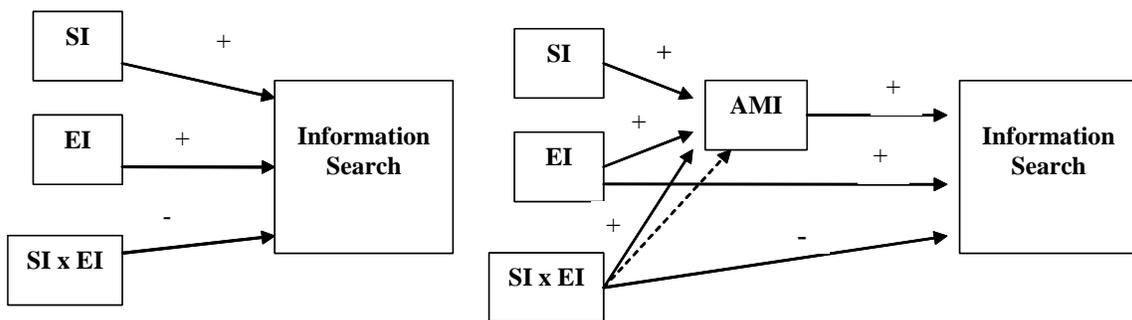
* the dotted line (SIxEI to AMI) indicates an insignificant impact of SI x EI on AMI followed by SI manipulation #2, while SI x EI interaction is significant based on SI manipulation #1

Information search is a type of RI, which taps into the behavioral aspect of Houston and Rothschild's (1978) RI definition. Information search is closely related to EI in that consumers with high EI are likely to constantly obtain and update their knowledge about the product category due to their ongoing interests. However, those consumers with low EI are unlikely to search for information regularly. Therefore the following hypotheses are proposed for the behavioral aspect of RI. Support for Hypotheses 5a and 5b would provide evidence of interactive function of SI and EI

H5a: The amount of information search is an interactive function of SI and EI.

H5b: The amount of information search is a partial function of the mediating role of AMI and direct and moderating effects of EI.

Figure 3.4: Information Search=f(SI,EI, AMI)



*the dotted line indicates an insignificant impact of SI x EI on AMI followed by SI manipulation #2, while SI x EI interaction is significant based on SI manipulation #1

The hallmark of ELM and HSM lies in their propositions concerning two qualitatively different processes responsible for attitude formation. Both ELM and HSM suggest that when consumers are highly motivated to process information, the resulting attitude formation is based on careful scrutiny of the information presented. Central or systematic processing is the mediating mechanism through which messages influence attitude formation. On the contrary, when consumers lack motivation to process information, their attitude formation is mediated by the less effortful peripheral or heuristic processing. Specifically, empirical evidence suggests that cognitive responses that are based on message content versus thoughts that are based on simple cues are responsible for attitude formation in high and low involvement conditions, respectively (Chaiken, 1980; Petty and Cacioppo, 1979, 1984; Maheswaran 1994). This does not mean, however, that subjects with low involvement process only source information while subjects with high involvement process only message information. Rather, all subjects process both message and source information in varying degrees. When consumer involvement is high, their cognitive responses based on message arguments such as product attribute information tend to predict attitudes. On the other hand, cognitive responses based on source cues or simple activation of the perception of source cue tend to predict attitudes best when involvement is low (Chaiken and Maheswaran 1994; Petty and Wegener 1998).

These two qualitatively different types of information processing are based on the assumption that it is impossible for people to expend considerable mental effort in thinking about all of the messages to which they are exposed. Consumers must allocate their limited level of cognitive capacity differentially depending on their level of motivation to process the information.

Consumers with low EI are likely to focus on literal information from the message due to a lack of ongoing product interests while consumers with high EI are likely to elaborate upon the message information by evaluating it in relation to their prior product experience and interests. Thus, the higher the enduring involvement consumers have about the product of interest, the more likely those consumers will bring their prior knowledge into their processing of the ad. Consumers with low EI are likely to consider product specific information much less interesting and may find it difficult to elicit attribute-oriented thoughts. Thus, it can be suggested that consumers with low EI are likely to prefer heuristic or category based processing.

Given the role of enduring involvement in information processing, it is likely that the level of SI alone cannot uniformly predict the type of processes. Specifically, in low SI condition, where peripheral or heuristic processing is the mediating mechanism to form attitudes, the strength of the relationship between the peripheral or heuristic processing and attitude formation is a negative function of EI. Thus, the following hypothesis is proposed for low SI condition:

H6a: The strength of the relationship between peripheral/heuristic processing and attitude formation decreases as the level of EI increases (see Figure 3.5).

In contrast, in the high SI condition where central or systematic processing is the mediating mechanism to form attitudes, the strength of the relationship between central or systematic processing and attitude formation is a positive function of EI. Thus, the following hypothesis is proposed for high SI condition:

H6b: The strength of the relationship between the central/systematic processing and attitude formation increases as the level of EI increases (see Figure 8).

Figure 3.5: Systematic vs. Heuristic Processing

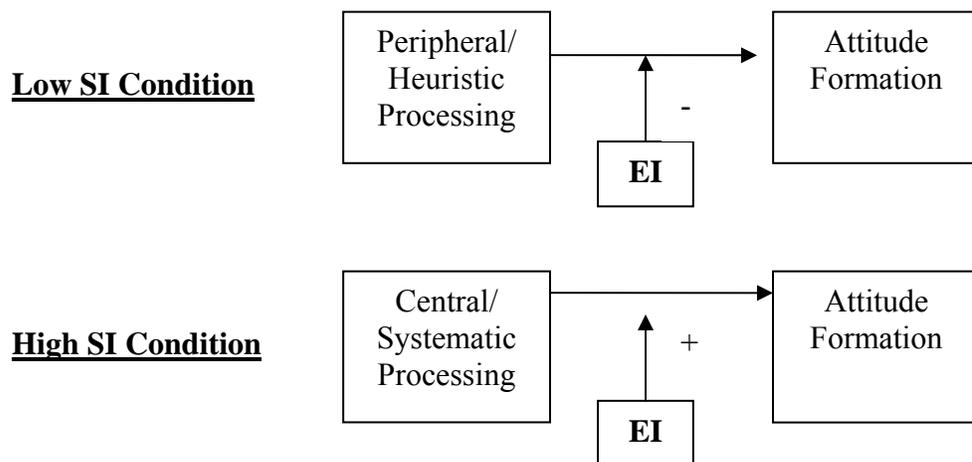


Table 3.1: Summary of Hypotheses

Dependent Variables	Independent Variables	Hypotheses	Predictions	Remarks
AMI	SI, EI	H1a	$AMI = (SI + EI)$	Additive Function
Amount of Attention Amount of Comprehension	AMI	H1b	$AMI = SI + EI + (SI \times EI)$	Interactive Magnification Function
		H2	$RI = AMI$	Complete Mediation
		H3	$RI = AMI$	Complete Mediation
Level of Elaboration	SI, EI, SIxEI	H4a	$RI = SI + EI + (SI \times EI)$	Interactive Magnification Function
	SI, EI, SIxEI, AMI	H4b	$RI = SI + EI + (SI \times EI) + AMI$	Partial Mediation
Information Search	SI, EI, SIxEI	H5a	$RI = SI + EI - (SI \times EI)$	Interactive Ceiling Function
	SI, EI, SIxEI, AMI	H5b	$RI = SI + EI - (SI \times EI) + AMI$	Partial Mediation
Attitude Formation under Low SI	Peripheral/Heuristic Processing (P)	H6a	$A = P + EI - (P \times EI)$	Interactive Ceiling Function
Attitude Formation under High SI	Central/Systematic Processing (C)	H6b	$A = P + EI + (P \times EI)$	Interactive Magnification Function

CHAPTER IV

METHODOLOGY

STUDY DESIGN

The proposed study employs two different sets of an experimental design that includes one manipulated variable (SI) and one measured variable (EI), each set of which is analogous to a 2 by 2 factorial design in the conventional term. However, the design this study employs is different from the 2 by 2 factorial design. Instead of dichotomizing EI and analyzing interaction effects via an ANOVA type analysis (i.e. Celsi and Olson 1988), the proposed study utilizes moderated regression analysis (Saunders 1956; Irwin and McClelland 2001), which is a multiple regression analysis with interaction term(s) included for testing moderating effects.

For many years, a number of methodologists in psychology and marketing have argued against such dichotomization of continuous independent variables (Maxwell and Delaney 1993; McClelland 1997; McClelland and Judd 1993; Irwin and McClelland 2001, 2003). Unfortunately, the practice of dichotomization of a continuous predictor (independent) variable is prevalent in psychology, marketing and advertising.

Specifically, although it is popular among experimental researchers to arbitrarily dichotomize a continuous independent variable by median split in order to assess interaction effects via an ANOVA type of analysis, arbitrarily dichotomizing a continuous measure results in reduction in measurement precision. That is, the

relationships between variables are underestimated, which leads to low statistical power for detecting true effects (Irwin and McClelland 2003). Further, Maxwell and Delaney (1993) argue that “researchers who dichotomize multiple continuous predictor variables not only may lose power to detect true predictor-criterion relationships in some situations but also may dramatically increase the probability of Type I error in other situations” (p. 181).

In addition to these methodological problems inherent in dichotomization, conceptually, the high and low designation along a continuous independent variable is very superficial. The designations of high and low may not be comparable from study to study. Thus, more sensitive and realistic data analysis should be done by treating continuous independent variables as they are.

Finally, to control for other factors not tested in this study it is necessary to randomly assign subjects into high and low SI manipulation conditions. Thus, variance of criterion measures (RI) explained could be attributable to variance in the predictor variables based on the probability notion that the groups do not differ from each other in potential confounding ways.

SAMPLE

A total of 223 students participated in the study for extra credit. This study employed two different sets of experiments. For the weak SI manipulation condition (hereafter Manipulation #1), 106 subjects were randomly assigned to high and low SI manipulation conditions while 117 subjects were randomly assigned to high and low

manipulation conditions of stronger SI (Manipulation #2). This number is approximately 30 subjects in each cell, analogous to a 2 (high and low SI) by 2 (High and Low EI) between subjects factorial design. However, as noted, EI is not dichotomized in the study to use the full information of EI. Finally, 45% of subjects were male and 55% were female for this study.

STIMULUS DEVELOPMENT

The target products used in this study should have a large variance in terms of EI and the products should be relevant to the student population. Based on the pretests conducted prior to the development of the stimulus materials, laptop computer and digital camera were selected due to their variance and their relevance to the student population. Of the two products, digital camera had relatively larger variance of EI than the one in laptop computers. Choosing products included in the advertisements that vary widely in enduring involvement increases power of the analysis. The two advertisements that the subjects viewed consist of product attribute information that reflected realistic print ads in their formats. Specifically, a number of product attributes were included in the ads along with visual presentation of the products to make the ads look as realistic as actual print ads in magazines (see Appendix L). Further, it has been pointed out in the literature (Bilkey and Nes 1982; Peterson and Jolibert 1995) that omission of the visual presentation of product(s) would provide different frames of reference that subjects might use to evaluate products in the ads. To reduce these undesirable errors in the study, both written information and visual presentations of products were necessary.

In order not to confound subjects' familiarity with products in the ads, pictures of products used in the study were sourced from a foreign country. Finally, heuristic cues (brand names) based on the pretest were included in each ad so that subjects who were to engage in less effortful processing such as peripheral/heuristic processing could utilize the brand name cue, rather than processing the advertising content messages using more effort via central/systematic processing. Dell for the laptop computer ad and Samsung for the digital camera ad were selected as heuristic cues for the study.

INDEPENDENT VARIABLES

EI was assessed through the scale developed by Higie and Feick (1989). As noted in the discussion of measurement of EI, although Zaichkowsky's PII scale was widely utilized among researchers to measure the enduring aspect of involvement, it has been criticized for its confounding nature (Higie and Feick 1989; McQuarrie and Muson 1987; 1992).

In the proposed study, EI is defined, in line with Richins and Bloch (1986), as an individual difference variable that is derived from personal relevance of the product which relates to the self image and hedonic pleasures on an ongoing basis. Higie and Feick's (1989) enduring involvement scale (EIS) is in line with the conceptual definition in the study (see Appendix B). Thus, EIS was used to assess the level of EI in this study. The degree of EI was formed as the mean of ten items. Higher score represented higher EI level. Chronbach's alpha for the scale showed an acceptable level of reliability at .88 for the laptop computer and .91 for the digital camera.

AMI is defined as the subjects' overall feelings of personal relevance during the exposure to an advertisement (Celsi and Olson 1988). However, given the problematic nature of Celsi and Olson's AMI measure (see Malhorta 1992 for a further discussion), Laczniaak and Muehling's (1993) message relevance scale was used for AMI. Their message relevance scale assesses the personal relevance of the advertising message (see Appendix C). The degree of AMI was formed as the mean of ten items. Chronbach's alpha for the scale showed an acceptable level of reliability at .91 for the laptop computer ad and .95 for the digital camera ad.

DEPENDENT VARIABLES

Four different types of response involvement, namely, amount of attention, comprehension, level of elaboration and information search intention were used in this study. Amount of attention refers to the amount of cognitive effort attending to product information in the ads, and was assessed through the 5-item scale of message attention (see Appendix D) from Laczniaak and Muehling (1993). Chronbach's alpha for the scale showed an acceptable level of reliability at .94 for the laptop computer ad and .96 for the digital camera ad.

Amount of comprehension refers to the amount of cognitive response in response to the advertising messages. Thus, the amount of comprehension was assessed based on the total number of cognitive responses in reaction to exposure to the advertisements (Celsi and Olson 1988).

Elaboration is defined as the integration of information in the message to form inferences. That is, consumers integrate the new information in the advertisements to infer unstated product attributes and/or relate information in the message to personal goals such as self-references (Celsi and Olson 1988; Greenwald and Leavitt 1984; MacInnis and Jaworski 1989).

In addition, unlike in a lower level of cognitive processes, elaboration concerns support and/or counterarguments of the advertising messages by integrating the new information in the ads with consumers' previous memory (Greenwald and Leavitt 1984; MacInnis and Jaworski 1989). Elaboration in this study was therefore assessed via cognitive response techniques suggested by Cacioppo, Harkins and Petty (1981) and Wright (1973). Specifically, those cognitive responses that reflected inferences beyond information given in the advertisements and support/counterarguments were used as an index for the level of elaboration among subjects.

Central/systematic and peripheral/heuristic processing was assessed via cognitive response techniques as well. Central/systematic processing was based on the valence of product attribute thoughts, while peripheral/heuristic processing was based on the valence of brand related thoughts. Using subjects' cognitive responses, four index scores were calculated for product attribute-related thoughts, heuristic-cue related thoughts, valence of attribute related thoughts and valence of heuristic cue-related thoughts (positive minus negative).

The level of information search intention was assessed through the scale (see Appendix E) used by Moorthy, Ratchford and Talukdar (1997). Chronbach's alpha for the laptop computer and digital camera were .72 and .70, respectively.

Finally, subjects' attitude toward advertised products (see Appendix F) was assessed via the scale by Maheswaran (1994). Chronbach's alpha for the laptop computer ad and digital camera ad were .91 and .94, respectively.

MANIPULATION AND CONFOUNDING CHECK

SI manipulation was assessed via the scale from Gurhan-Canli and Maheswaran (2000) immediately before the exposure to the advertising message in order to control for the possible confounding between AMI and SI (see Appendix G).

The SI manipulation in this study was checked by having subjects rate the extent to which they were interested in evaluating the product using three items on a 7-point semantic differential scale.

For manipulation #1, Chronbach's alpha for the laptop computer and digital camera were .92 and .90, respectively. For manipulation #2, Chronbach's alpha for the laptop computer and digital camera were .85 and .83, respectively. For both manipulation sets, high SI subjects indicated higher level of SI than low SI subjects ($p < .05$). The confounding check for the opportunity construct is assessed via the scale (see Appendix H) from Andrews and Durvasula (1991). No statistically significant difference among groups are observed for the opportunity to process advertising messages ($p > .05$).

PROCEDURE

Subjects were invited to a lab equipped with computers with Internet connection since data collection for the experiment was collected via online instruments. First, subjects' level of EI was assessed. The assessment of EI was carried out prior to exposing subjects to the manipulation of SI. Then, through random assignment, subjects were directed to one of the SI manipulation conditions. Before exposure to the target ads, subjects were asked to indicate their level of SI. This way, the manipulation check of SI could be largely free of potential confounding with AMI, which is a different construct in the proposed study.

After the SI assessment, subjects were directed to a Web page containing the target ads. Within the treatment conditions, subjects were asked to answer the AMI questions, which were followed by the dependent measures.

Given that comprehension, elaboration, central/systematic and peripheral/heuristic processing were assessed via cognitive response techniques, it was important to decide how long and when cognitive responses should be assessed in the proposed study. According to Cacioppo et al. (1981), while researchers assessing cognitive responses have used varying measurement times that range from a mere 30 second to more than 10 minutes, duration of 3 minutes has been the most widely used time frame in the previous studies. More recent works dealing with cognitive responses also allocated 3 minute-time limits (Maheswaran 1994; Chaiken and Maheswaran 1994). Thus, the current study imposed a 3-minute time limit for listing cognitive responses.

In addition, while researchers have collected cognitive response data during and after the exposure to advertisements, “unexpected request to list everything about a subject thought during the presentation of a persuasive appeal... provides a useful indication of the cognitive responses elicited naturally by the persuasive appeal” (Cacioppo et al. 1981, p. 46). Therefore, cognitive responses in the proposed study were assessed on the next page after viewing the advertisements.

Then, confounding check was carried out to assess a potential confounding, namely, the opportunity to process information. Finally, subjects were asked about their demographic characteristics, followed by debriefing of the study purpose.

PRETESTS

Conducting pretests were prerequisite to testing the hypotheses in the main study. First, products utilized in the main study were selected based on the variance in EI and the relevance of the products to student population. Second, it was necessary to determine the product attribute information that might be important among consumers to evaluate the products. Third, to test the role of SI in the main study, two different sets of SI manipulation were assessed in pretests. Fourth, favorability of the heuristic cues were assessed to accomplish positive association with the laptop computer ad and negative association with the digital camera ad for easier detection of dual route processing (Petty and Wegener 1988, 1999; Chen and Chaiken 1999).

Pretest 1

Two products that varied widely in EI among subjects were selected. This was based on the rationale that restriction in range (low variability) would cause reduced relationship than the one in the population. Based on previous research, potential candidates for the product categories include, but not limited to, television sets, PDAs, digital cameras, and laptop computers (Hiegie and Feick 1989; Lee, Yun and Lee 2005; McQuarrie and Munson 1992; Zaichkowsky 1985), which showed wide variance among student sample. In order to determine if the findings could be generalizable to a different product category, two different products were selected among ten products which were laptop computer, digital camera, washing machine, cell phone, shampoo, jeans, coffee, wine and greeting card. A sample of 45 undergraduate students was recruited to participate in Pretest 1. Laptop computer and digital camera were selected based on the variance of EI and the careful consideration of relevance to the student population. In addition, reliability of EI scale was assessed for laptop computer ($\alpha=.88$) and digital camera ($\alpha=.92$).

Pretest 2

After determining the appropriate product categories, it was necessary to determine potential product attribute information that could be included in the proposed study's advertisements. Both *Consumer Reports* and free-elicitation technique were employed to select potential product attribute information for the two product categories.

Student sample of 43 were recruited for eliciting product attributes that could be important when evaluating performance for each product category. Those attributes that rank high were considered for inclusion in the proposed study along with product attributes suggested important based on *Consumer Reports*.

Pretest 3

A number of SI manipulation sets (see Appendix M for examples SI manipulation) were tested to see if statistically significant differences between high and low SI conditions were detected. Based on the results, two different sets of manipulation that differed within the group variances were selected while meeting statistical significance between high and low conditions.

In Pretest 3, student sample of 132 were recruited. Two sets of SI manipulation were determined via a scale (see Appendix G) by Gurhan-Canli and Maheswaran (2000).

DADA ANALYSIS

The proposed study deals with moderation and mediation as focal points in testing hypotheses. Thus, general illustration of statistical aspects and procedures of moderator and mediator are provided first. Then, data analyses for hypotheses are followed with specific procedures for testing moderation and mediation in the proposed study.

Statistical Aspects of Moderator and Mediator

Moderator

Sharma et al. (1981, p 294) note that “in all but just a few marketing-related studies, if the variable treated as a moderator was already in qualitative form such as sex, the moderator variable was measured in a continuous or quantitative manner ... and then split (e.g., dichotomized, trichotomized).” This unfortunate tradition of splitting variables is largely based on the popularity of data analysis using analysis of variance (ANOVA) in marketing-related areas (Irwin and McClelland 2001). Further, Irwin and McClelland (2001, p. 106) note that “Median splits, common in marketing, are motivated to facilitate both interpretation and interactions and their statistical tests... Splitting ... into two or more groups may be appealing to those trained in an ANOVA framework because the interaction appears easier to explicate. Unfortunately, median splits are likely to change the statistical significance of the interaction.”

Using hypothetical data, Irwin and McClelland (2001) show that statistically significant interaction found in moderated regression analysis is no longer significant for the data using median split as a method to dichotomize the continuous variable. As it is well acknowledged, dichotomization reduces information in the data, which results in severe restriction in range. This aspect should not be taken lightly because most advertising and marketing studies use student sample that are relatively homogenous. Thus, this relatively homogenous sample coupled with dichotomization further results in restriction in range.

Therefore, median split further exacerbates the detection of statistical significance. In addition to the reduced power of detecting interaction effects, data analysis based on median split can also lead to spurious interaction that does not exist

(Maxwell and Delaney 1993). In sum, “there is almost always a cost associated with dichotomization... the cost is not necessarily one of conservatism, but instead may be an increase in Type I errors” (Maxwell and Delaney 1993, p.188). Therefore, ANOVA should be limited to analysis dealing with naturally occurring dichotomous variable or manipulation while if there is a continuous moderator or independent variable moderated regression analysis is the preferred statistical analysis technique.

When the independent and moderator variable are dichotomous, data analysis using ANOVA is the default statistical method and the significant interaction effects (IV x Moderator) provide evidence of moderation effect.

If either independent or moderator (or both) variable is continuous variable, the default statistical analysis is Moderated Regression Analysis, which is best presented by hierarchical regression analyses as the following (Baron and Kenny 1986; 1998; Cohen and Cohen 1983; Irwin and McClelland 2001; Subhash, et al. 1981; Zedeck 1971):

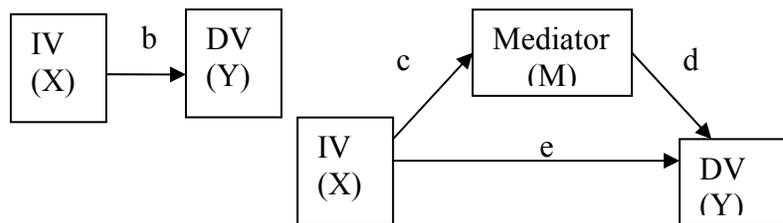
- 1) $y = a + b_1x$
- 2) $y = a + b_1x + b_2z$
- 3) $y = a + b_1x + b_2z + b_3xz$

These analyses can be readily presented by hierarchical regression analyses where equation 1 is followed by equation 2 and 3, in order. Then, the significant R^2 increase in equation 3 over equation 2 suggests that there is a statistically significant moderating effect of z on the relationship between x and y. By this procedure, the loss of information due to dichotomization and erroneous conclusion due to spurious interaction effects can be obviated.

Mediator

A variable is considered statistically as a mediator when four conditions are met. According to Baron and Kenny (1986, 1998), First, variations in the independent variable (IV) is significantly associated with the variance in the dependent variable (DV); path b in the Figure 11. Second, variations in IV are significantly associated with the variations in the mediator variable; path c. Third, the mediator is significantly related to the DV; path d. Fourth, the impact of IV on the DV is significantly less after controlling for the mediator; path e.

Figure 4.1: Testing Mediation



To test mediation in Figure 11 above, three different regression analyses are required. First equation requires simple regression where Y is regressed on the independent variable (X). This first analysis is testing the path b in the Figure 11. Second, the mediator, M, is regressed on independent variable, X, which tests path c. Finally, DV is regressed on both IV (X) and mediator variable (M). These three regression analyses can be represented as the following equations:

- 1) $Y = a + bX$
- 2) $M = a + cX$
- 3) $Y = a + eX + dM$

Complete mediation is evidenced when coefficient e in equation 3 is zero while partial mediation is observed when coefficient e (equation 3) is significantly less than coefficient b in equation 1. Mediation effects are obtained either by the product of path c and d or by subtracting path e from path b .

Data Analyses for Hypotheses

In order to test the hypotheses a series of independent multiple regression analyses will be conducted. As noted, dichotomization of continuous variables (EI and AMI) into high and low involvement groups via median split should be avoided for methodological reasons stated above. When dealing with potential interaction effects, Moderated Regression Analysis, multiple regression analysis with interaction term(s), will be used instead of ANOVA.

Before the test of Hypothesis 1, which investigates the joint role of SI and EI on AMI, two regression analyses are performed to complement previous main effect studies of SI and/or EI on AMI. First, AMI is regressed on SI to support the previous understanding of the role of SI as a proxy variable affecting AMI. This result will support the previous research attempts that have manipulated AMI via situational factors. Then, through hierarchical multiple regression, EI is added to the previous simple regression containing SI to examine the statistically significant increase in R^2 above and beyond the role of SI on AMI. The confirmation of this step will support the concerns about the inadequacy of SI to manipulate AMI.

Third, directly related to testing Hypothesis 1, inclusion of the product term of SI and EI into the step 2 will provide empirical evidence of the way in which SI and EI influence AMI. Indication of statistical significance of the product term, which is equivalent to a significant increase in R^2 , will provide evidence that there is an interaction effect of SI and EI on AMI. The sign of the interaction effect will suggest whether it is a magnifying or ceiling effect. Specifically, a positive effect of the interaction will support an “interactive magnification function.” That is, the influence of SI on AMI increases as the level of EI increases. In contrast, a negative effect of the interaction will support the “interactive ceiling function.” In other words, the influence of SI on AMI decreases as the level of EI increases. No statistical significance indicates that the role of SI and EI on AMI is just a straightforward additive function.

Hypothesis 2 proposes potential moderation and mediation among involvement types. Specifically, Hypothesis 2 postulates that as the level of AMI, derived from joint function of SI and EI, increases, the amount of attention paid to advertisements (RI) increases. Further, it proposes that the joint function of SI and EI on the amount of attention is completely mediated by the role of AMI as a mediator.

To test Hypothesis 2, three separate multiple regression analyses are required for both moderation and mediation. One of the required multiple regression analyses is covered in the testing of Hypothesis 1, in which AMI is regressed on SI, EI and the product term of SI and EI. In the second step, the amount of attention (RI) is regressed only on the predictor variables excluding the mediator variable. Thus, amount of attention (RI) is regressed on SI, EI and the product term of SI and EI. Lastly, amount of attention

(RI) is regressed on both predictor variables and on mediator variable. In the third step, multiple regression analysis treats all the predictor variables tested in Hypotheses 1; SI, EI, SI and EI interaction term, and AMI as predictor variables. Thus, AMI, which is the criterion variable in testing Hypothesis 1, is used as a predictor in this third step of multiple regression analysis for testing Hypothesis 2.

In order to meet the Hypothesis 2, which proposes complete mediation of AMI between predictor variables (SI, EI and SI x EI) and the amount of attention, only paths from SI, EI, SI x EI to AMI and AMI to the amount of attention need to show statistically significant b coefficients, while a direct path from SI, EI, SI x EI to the amount of attention should not be statistically significant when AMI is in the equation. Stated differently, direct effects tested in the second step where RI is regressed on SI, EI, and the interaction term of SI and EI must not have statistically significant direct effect beyond their indirect effects via AMI in the third step of multiple regression analysis. If there is a statistically significant direct effect above and beyond the indirect effect via AMI, then only partial mediation is supported.

For Hypothesis 3, which proposes potential moderation and mediation like Hypothesis 2, the steps required are exactly the same except that, amount of comprehension is used in place of amount of attention. Further, expected outcome is the same as the above analyses for Hypothesis 2.

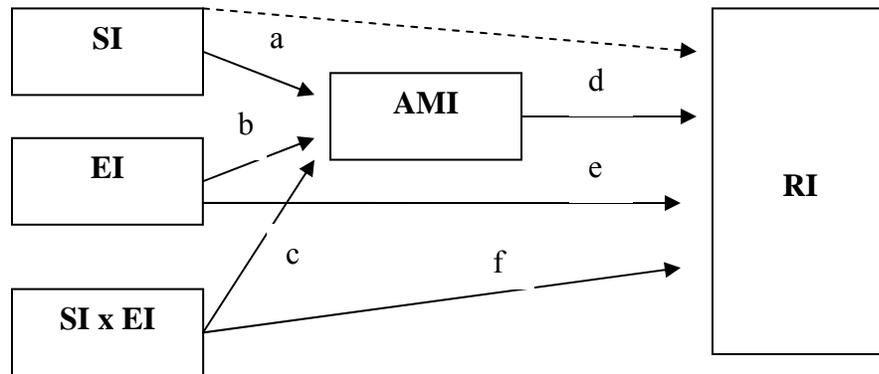
Hypothesis 4 proposes that the amount of elaboration is a partial function of the mediating role of AMI and direct and moderating function of EI. The procedures for testing Hypothesis 4 are the same as for testing hypotheses 2 and 3. However, the

expected results are different from the two previous hypotheses. Specifically, in order to meet Hypothesis 4, paths from SI, EI, SI x EI to AMI and AMI to the amount of elaboration need to show statistically significant b coefficients. This provides the mediation of AMI from the predictor variables and the criterion variable. In addition to this mediation, paths from EI and the product term of SI and EI to the amount of elaboration (RI) while controlling for AMI need to show statistical significance. Further, all the paths need to show positive effects to meet the hypothesis. In addition, if the impact of interaction term of SI and EI on RI is reduced significantly in the last step that includes AMI, then according to Baron and Kenny (1986), mediated moderation is indicated. That is, the moderating role of SI and EI on the amount of elaboration is mediated partially through AMI.

Testing Hypotheses 5 also requires the same three multiple regression analyses. This time, negative interaction of SI and EI on information search is expected in the last step of multiple regression analysis.

In order to provide a complete picture of the interrelationships among involvement types, RI is regressed on all other types of involvement including interaction term, while AMI is regressed on all other types of involvement plus interaction term, excluding RI in the equation. Then, standardized regression coefficients are decomposed into direct and indirect effects to provide empirical findings for the complete model depicted in Figure 12.

Figure 4.2: Involvement Framework

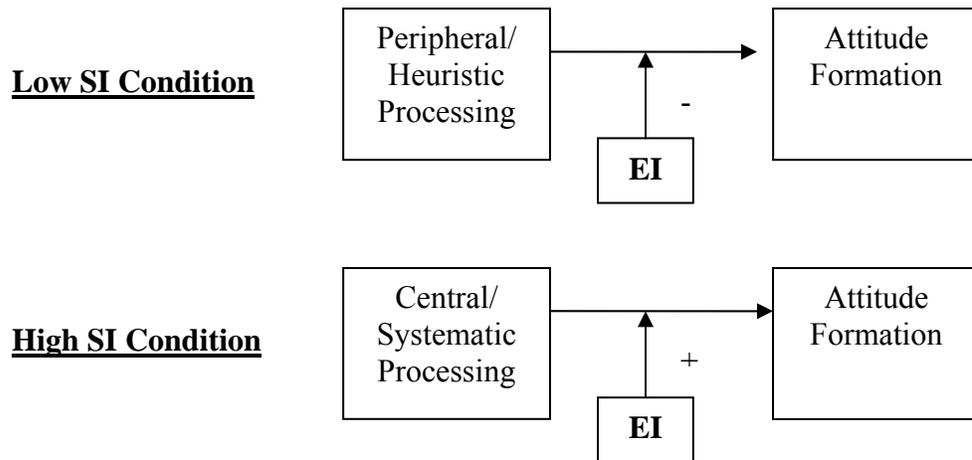


Finally, testing Hypothesis 6 will assess the potential moderating role of EI beyond the role of SI moderating the route to attitude formation. Previous research dealing with the moderating role of involvement (SI) on the route to attitude formation has been conducted by testing the relationship between processes and attitude formation similar to Figure 13, without including the role of EI. However, as suggested in Hypothesis 6, the proposed study posits that the relationship depicted in Figure 13 is conditional on the level of EI. In other words, the strength of the relationship between either high effort (central/systematic) or low effort (peripheral/heuristic) processing and attitude formation is dependent on the level of EI.

Specifically, for low SI condition, where peripheral/heuristic processing is the primary processing mechanism to account for attitude formation, the strength of the relationship between peripheral/heuristic processing and attitude formation is postulated to decrease as the level of EI increases. For high SI condition, however, the opposite pattern is expected. Thus, the strength of the relationship between central/systematic

processing and attitude formation is postulated to increase as the level of EI increases. To test the hypothesis, attitude formation is regressed on interaction term of processing and EI along with simple effects of processing and EI.

Figure 4.3: Attitude Formation



CHAPTER V

RESULTS

Hypotheses were tested using moderated regression analyses taking into account of the problems associated with dichotomization of a continuous variable, commonly observed in tests via ANOVA with a median split (Maxwell and Delaney 1993; McClelland 1997; McClelland and Judd 1993; Irwin and McClelland 2001, 2003).

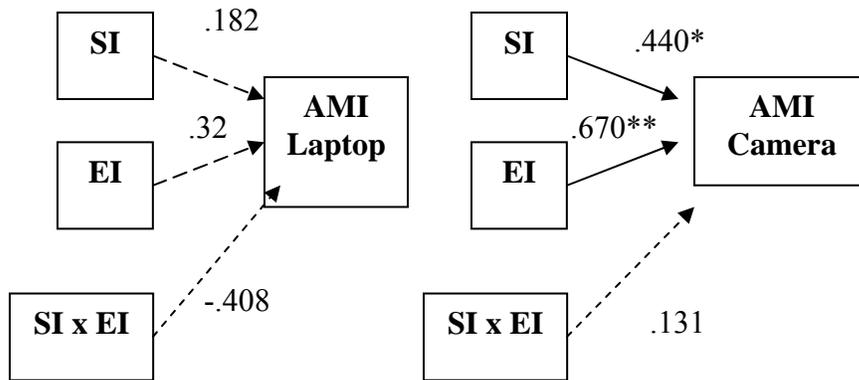
First, given that this study employed two different scenarios of manipulation of SI, each hypothesis was tested under each manipulation scenario. Specifically, first scenario of SI manipulation (hereafter manipulation #1) varied local availability of the products featured in the ads and similarity/difference of brands in general within the product categories studied in this study. Second scenario of SI manipulation (hereafter manipulation #2) not only varied the SI condition in terms of local availability and similarity/difference of brands within the product categories in general but also varied the level of perceived purchase intention of the subjects. Thus, compared to the manipulation #1, the manipulation #2 is expected to produce a stronger difference between high SI and low SI, in terms of between group variance of high and low SI, which was found to be the case in this study.

Under each manipulation scenario, hypotheses were tested using two different product ads, namely, laptop ad and digital camera ad. Hence, hypotheses were tested under each manipulation scenario using two different product ads.

H1a (Manipulation #2): AMI=SI+EI

H1 suggests that the level of AMI is determined by the joint function of SI and EI. Specifically, H1a postulates that the level of AMI is determined by the additive function (main effects) of SI and EI. In functional form, $AMI=SI+EI$. Figure 5.1 shows the model tested for H1a.

Figure 5.1: Joint Function of SI and EI (H1b)



* $p<.05$, ** $p<.01$, *** $p<.001$

Results of the moderated regression analyses suggest that there is statistically significant joint effect of SI and EI on AMI for the digital camera ad ($F= 17.740$, $p<.001$). The manner in which SI and EI influence AMI is found in the tests of b coefficients in Table 5.1. As postulated in H1a, there is only additive function of SI and EI on the level of AMI for digital camera ad. Further, the result suggests that high SI group has higher level of AMI, which is .446 more, than low SI group, while controlling for the effect of EI. In addition, after controlling for the effect of SI, EI also has a

statistically significant positive effect on the level of AMI, $t=4.12$, $p<.001$. As expected from H1a, however, there is no statistically significant interaction between SI and EI on AMI for the digital camera ad ($p>.05$). While H1a with regard to the digital camera ad supports H1a the results concerning AMI for the laptop ad do not support H1a. There is no statistically significant joint effect of SI and EI on AMI ($p>.05$).

In sum, under manipulation #2 condition, H1a is supported only for the digital camera ad condition.

Table 5.1: H1a (Joint Function of SI and EI on AMI)

	Laptop Ad				Digital Camera Ad				
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.	
Constant	4.664		29.18	0.000	Constant	4.664	31.189	0.000	
SI	0.182	0.077	0.828	0.410	SI	0.446	0.169	2.171	0.032
EI	0.325	0.211	1.549	0.124	EI	0.67	0.474	4.123	0.000
SIxEI	-0.408	-0.193	-1.422	0.158	SIxEI	0.131	0.068	0.593	0.554
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.	
.028	.002	1.070	.367		.320	.302	17.740	.000	

H1b (Manipulation #1): $AMI=SI+EI+(SI \times EI)$

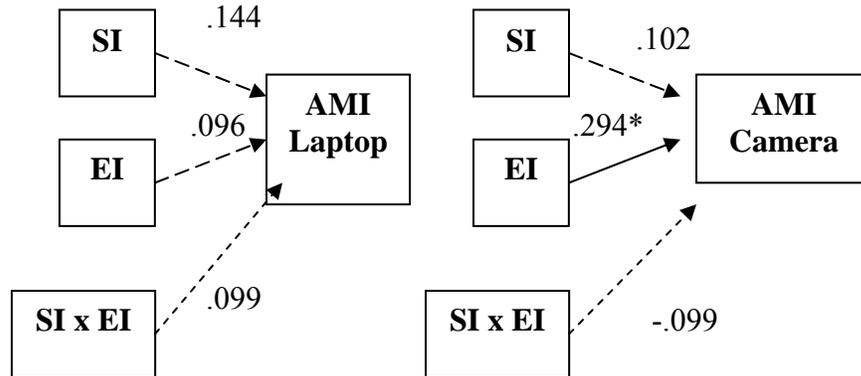
H1b also states that the level of AMI is determined by the joint function of SI and EI. H1b, however, postulates that the joint function is not additive but interactive. Thus, H1b suggests that the influence of SI on the level of AMI is dependent along the level of EI. The results of the moderated regression analyses regarding digital camera ad and laptop computer ad suggest that there is marginally significant overall effect, for laptop ad, $F=2.12$, $p<.1$ and, for digital camera ad, $F=2.51$, $p<.1$ (see Table 5.2 and Figure 5.2). However, tests of b coefficient of SI, EI and SIxEI reveal that there are no statistically

significant relationships under laptop ad while only EI is statistically significant indicator to the level of AMI for the digital camera ad, $t=2.35$, $p<.05$. Thus, H1b is not supported.

Table 5.2: H1b (Joint Function of SI and EI on AMI)

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.395		25.455	0.000	4.924		30.925	0.000
SI	0.37	0.144	1.486	0.140	0.244	0.102	1.065	0.290
EI	0.141	0.096	0.705	0.483	0.396	0.294	2.345	0.021
SIxEI	0.207	0.099	0.73	0.467	-0.205	-0.099	-0.789	0.432
R²	Adjusted R²	F(3,102)	Sig.		R²	Adjusted R²	F(3,102)	Sig.
.061	.033	2.212	.091		.069	.042	2.521	.062

Figure 5.2: Joint Function of SI and EI (H1a)



* $p<.05$, ** $p<.01$, *** $p<.001$

Taken H1a and H1b together, it can be concluded that the joint function of SI and EI on the level of AMI is simply additive. In other words, the influence of SI and/or EI on the level of AMI is independent of the other type of involvement.

H2 (Amount of Attention=AMI; f(SI,EI,AMI))

H2 states that the level of attention paid to ads is determined by the level of AMI. Specifically, H2 examines if AMI is positively related to the level of attention paid to ads.

In addition to testing this simple relationship between the level of AMI and the amount of attention paid to the ads, namely, laptop ad and digital camera ad, more important aspect of H2 examines if there is a mediating effect of AMI between the antecedent involvement types (SI, EI and SIxEI) and the amount of attention paid to the ads.

H2 (Manipulation #1)

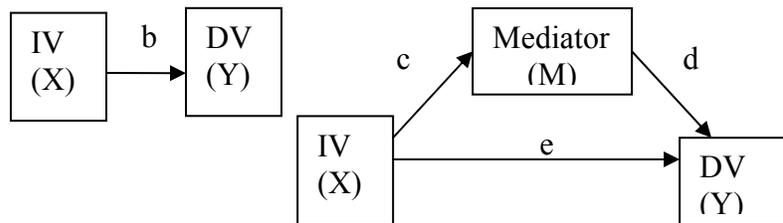
In order to test H2, postulating the positive relationship between AMI and the amount of attention paid to ads, simple regression analyses are carried out. Results of these simple regression analyses are shown in Table 5.3. As reported in the Table, for both laptop ad and digital camera ad, AMI has a statistically significant positive relationship with the amount of attention paid to the ads. In other words, as the level of AMI increases, the amount of attention paid to the ads also increases. Thus, H2, with regard to the simple relationship between AMI and attention, is supported.

Table 5.3: H2 (Amount of attention=AMI (Manipulation #1))

Laptop Ad				Digital Camera Ad				
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	3.825		23.881	0.000	4.545		31.107	0.000
AMI	0.345	0.261	2.758	0.007	0.357	0.276	2.933	0.004
R ²	Adjusted R ²	F(1,104)	Sig.	R ²	Adjusted R ²	F(1,104)	Sig.	
.068	.059	7.606	.007	.076	.068	8.603	.004	

In addition to the role of AMI as a significant predictor to the amount of attention, AMI is postulated to mediate the joint effect of SI and EI on the amount of attention paid to laptop and digital camera ads. In other words, if SI, EI and/or SIxEI affect the amount of attention paid to the ads, their influences are indirect through the mediating role of AMI. To test this mediation model, three separate multiple regression analyses are conducted for each ad.

Figure 5.3: Testing Mediation of AMI



First, DV (amount of attention paid to each ad) is regressed on IVs (SI, EI, and SIxEI). This tests path b in the Figure 5.3. Second, AMI is regressed on IVs (SI, EI, and SIxEI), which test path c in the Figure. Third, DV (amount of attention) is regressed on IVs (SI, EI, and SIxEI) and AMI, which test path d and e.

Results of the three separate multiple regression analyses are provided in Table 5.4. See also Figure 5.4 for the visual relationship. As shown in the Table, there is no statistically significant relationship between IVs (SI, EI, and SIxEI) and the amount of attention paid to laptop ad and camera ad, respectively ($p > .05$). This reveals that first condition for the mediation effect is not met. While Baron and Kenny (1986) and Judd

and Kenny (1981) suggest that the first requirement is necessary to establish mediation process, recently Kenny, Kashy and Bolger (1998) note that path from IVs to DV is implied if IVs affect mediator and mediator affects DV while controlling for the influence of IVs. Thus, if path c and d is statistically significant mediation process is suggested (p. 260).

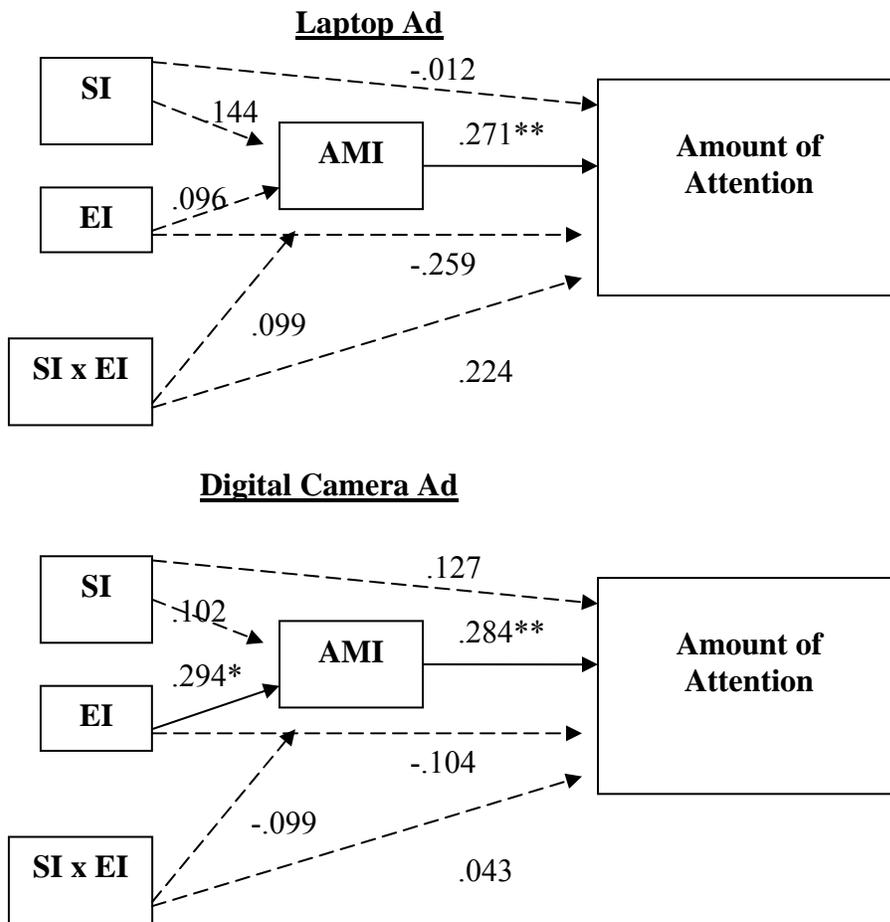
Results of the other two multiple regression analyses suggest that under digital camera ad condition there is an indirect influence of EI on the amount of attention paid to camera ad via AMI (see Figure 5.4). However, there is no indication of mediation process under laptop ad condition.

Table 5.4: H2 (SI, EI)→AMI→Amount of Attention (Manipulation #1)

Laptop Ad					Digital Camera Ad				
DV: Amount of Attention	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.	
Constant	3.803	0.225	16.8890	0.000	4.356	0.204	21.371	0.000	
SI	-0.0416	0.326	-0.128	0.899	0.394	0.295	1.337	0.184	
EI	-0.5	0.259	-1.927	0.057	-0.181	0.221	-0.819	0.415	
SIxEI	0.616	0.369	1.672	0.098	0.115	0.334	0.346	0.730	
AMI	0.358	0.128	2.787	0.006	0.366	0.126	2.897	0.005	
R²	Adjusted R²	F(4,101)	Sig.	R²	Adjusted R²	F(4,101)	Sig.		
.104	.068	2.920	.025	.099	.064	2.785	.031		
Constant	3.734		16.157	0.000	4.313		20.487	0.000	
SI	0.0908	0.027	0.272	0.786	0.483	0.156	1.593	0.114	
EI	-0.45	-0.233	-1.682	0.096	-0.0363	-0.021	-0.162	0.871	
SIxEI	0.691	0.251	1.819	0.072	0.0401	0.015	0.116	0.908	
R²	Adjusted R²	F(3,102)	Sig.	R²	Adjusted R²	F(3,102)	Sig.		
.035	.006	1.223	.305	.025	-.004	0.854	.467		
DV:AMI	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.	
Constant	4.395		25.455	0.000	4.924		30.925	0.000	
SI	0.37	0.144	1.486	0.140	0.244	0.102	1.065	0.290	
EI	0.141	0.096	0.705	0.483	0.396	0.294	2.345	0.021	
SIxEI	0.207	0.099	0.73	0.467	-0.205	-0.099	-0.789	0.432	
R²	Adjusted R²	F(3,102)	Sig.	R²	Adjusted R²	F(3,102)	Sig.		
.061	.033	2.212	.091	.069	.042	2.521	.062		

Therefore, it can be concluded that AMI is positively related to the amount of attention paid to laptop ad and digital camera ad. However, while there is an indication of mediation process under digital camera ad no such finding is observed under laptop ad condition.

Figure 5.4: Testing Mediation for H2 (Manipulation #1)



*p<.05, **p<.01, ***p<.001

H2 (Manipulation #2)

In order to test H2 with SI manipulation dealing with local availability, product unique features and purchase intention manipulation, simple regression analyses are carried out first to see if there is a positive relationship between AMI and the amount of attention paid to ads, followed by mediation analyses.

Results of these simple regression analyses are provided in Table 5.5. As noted in the Table, for both laptop ad and digital camera ad, AMI has a statistically significant positive relationship with the amount of attention paid to the ads. Thus, these results support the H2, “as the level of AMI increases, the amount of attention paid to the ads also increases.”

Table 5.5: H2 (Amount of attention=AMI (Manipulation #2))

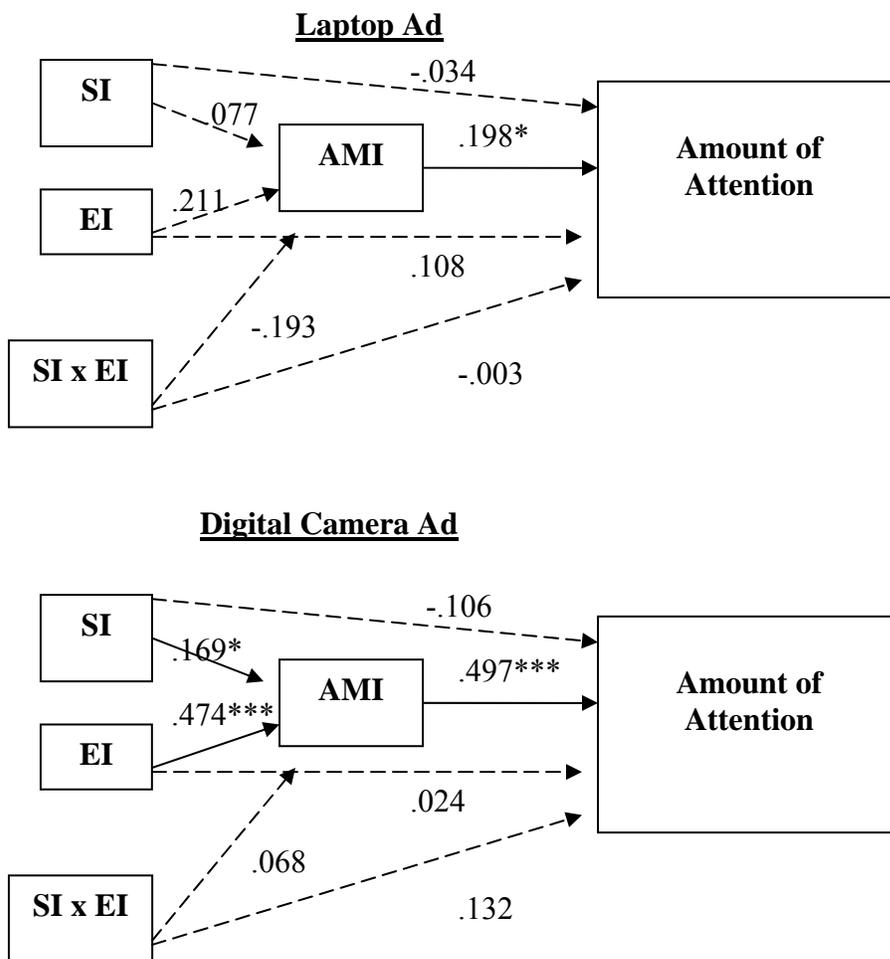
	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.055		26.659	0.000	4.585		36.467	0.000
	0.286	0.203	2.222	0.028	0.664	0.544	6.951	0.000
R²	Adjusted R²	F(1,115)	Sig.	R²	Adjusted R²	F(1,115)	Sig.	
.041	.033	4.937	.028	.296	.290	48.314	.000	

To test the mediation model, three separate multiple regression analyses are conducted for each ad condition. Results of three separate multiple regression analyses are provided in Table 5.6, followed by Figure 5.5, depicting the mediation model.

As shown in the Table and the Figure, there is an indication of mediation process under the digital camera ad. Specifically, SI and EI indirectly affect the amount of

attention paid to digital camera ad via AMI. However, mediation model for the laptop ad, depicted in the Figure, indicates that only AMI is responsible for the amount of attention paid to the ad. There is no statistical evidence of mediation process under the laptop ad condition.

Figure 5.5: Testing Mediation for H2 (Manipulation #2)



*p<.05, **p<.01, ***p<.001

Table 5.6: H2 (SI, EI)→AMI→Amount of Attention (Manipulation #2)

Laptop Ad					Digital Camera Ad				
DV: Amount of Attention	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.	
Constant	4.115		18.3690	0.000	4.754		25.749	0.000	
SI	-0.113	-0.034	-0.368	0.713	-0.342	-0.106	-1.337	0.184	
EI	0.234	0.108	0.791	0.413	0.0421	0.024	0.198	0.844	
SIxEI	-0.0078	-0.003	-0.019	0.984	0.31	0.132	1.147	0.254	
AMI	0.28	0.198	2.126	0.036	0.607	0.497	5.282	0.000	
R²	Adjusted R²	F(4,112)	Sig.		R²	Adjusted R²	F(4,112)	Sig.	
.054	.020	1.593	.181		.326	.302	13.529	.000	
Constant	4.086		17.996	0.000	4.608		22.686	0.000	
SI	-0.0626	-0.019	-0.201	0.841	-0.0716	-0.022	-0.257	0.798	
EI	0.325	0.15	1.092	0.277	0.448	0.26	2.032	0.045	
SIxEI	-0.122	-0.041	-0.3	0.765	0.389	0.166	1.298	0.197	
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.	
.016	-.010	.599	.617		.158	.135	7.059	.000	
Laptop Ad					Digital Camera Ad				
DV:AMI	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.	
Constant	4.664		29.18	0.000	Constant	4.664	31.189	0.000	
SI	0.182	0.077	0.828	0.410	SI	0.446	0.169	2.171	0.032
EI	0.325	0.211	1.549	0.124	EI	0.67	0.474	4.123	0.000
SIxEI	-0.408	-0.193	-1.422	0.158	SIxEI	0.131	0.068	0.593	0.554
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.	
.028	.002	1.070	.367		.320	.302	17.740	.000	

Taken manipulation #1 and manipulation #2 together, there is some empirical evidence that AMI plays a mediating role between the antecedent involvement types, EI in manipulation #1 and SI and EI in manipulation #2, and the amount of attention paid to the digital camera ad. This mediation process, however, is only found under the digital camera ad. Contrary to the observed mediation process under the digital camera ad, under laptop ad condition there is no statistically significant evidence suggesting mediation process between antecedent involvement types (SI, EI and SIxEI) and the amount of attention paid to the laptop ad. With regard to the simple regression analyses between AMI and the amount of attention paid to the ads, in all conditions, there is a statistically

significant positive relationship between AMI and the amount of attention paid to the digital camera ad and the laptop computer ad.

H3 (Amount of Comprehension=AMI; f(SI,EI,AMI))

H3 postulates that the amount of comprehension regarding ads is a function of SI, EI, SIxEI and AMI. Specifically, H3 asserts that antecedent involvement types (SI, EI, SIxEI) influence the amount of comprehension regarding ads indirectly via AMI, which acts as a mediator between their relationships.

In line with testing H2, H3 also investigates if AMI is positively related to the amount of comprehension, followed by testing mediation process via AMI between the antecedent involvement types (SI, EI and SIxEI) and the amount of comprehension concerning laptop ad and digital camera ad, respectively.

H3 (Manipulation #1)

First, to test if there is a positive relationship between AMI and the amount of comprehension, the amount of comprehension is regressed on AMI for laptop ad and digital camera ad separately. Results of the simple regression analyses are provided in Table 5.7.

As shown in the Table, there is no statistically significant relationship between AMI and the amount of comprehension for both laptop ad and digital camera ad ($p > .05$).

Table 5.7: H3. (Amount of comprehension=AMI (Manipulation #1))

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.415		19.353	0.000	4.160		19.61	0.000
AMI	0.001	0.001	0.009	0.993	0.257	0.141	1.455	0.149
R²	Adjusted R²	F(1,104)	Sig.	R²	Adjusted R²	F(1,104)	Sig.	
.000	-.010	.000	.993	.020	.011	2.118	.149	

Following the simple regression analyses conducted to test the relationship between AMI and the amount of comprehension, potential mediation process is examined for laptop ad and digital camera ad comprehension.

Results of three separate multiple regression analyses are provided in Table 5.8 and depicted in Figure 5.6. As can be expected from the simple regression analyses conducted above, there is no statistically significant evidence of mediation process for both laptop ad and digital camera ad comprehension. The results of mediation analyses suggest that different involvement types (SI, EI, SIxEI and AMI) are not sufficient to predict the amount of comprehension of the ads.

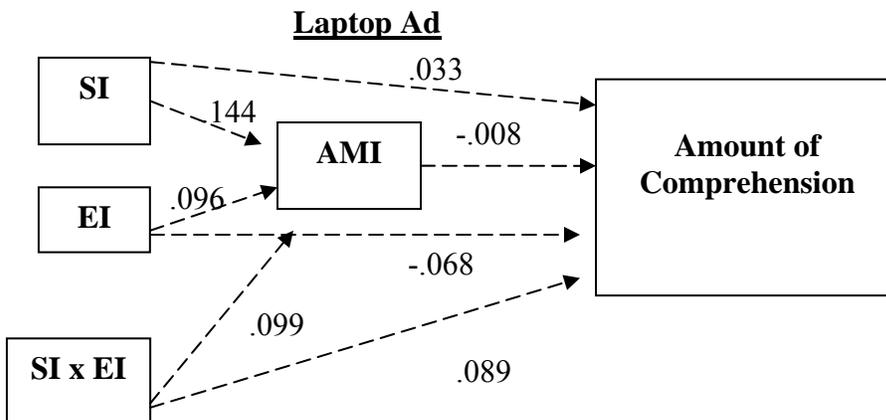
Table 5.8: H3. (SI, EI)→AMI→Amount of Comprehension (Manipulation #1)

Laptop Ad					Digital Camera Ad				
DV:Compre hension	Unstandardized				Unstandardized				
	Coefficient (B)	Beta	t	Sig.	Coefficient (B)	Beta	t	Sig.	
Constant	4.319		13.2380	0.000	4.103		13.7090	0.000	
SI	0.153	0.033	0.323	0.748	0.119	0.027	0.274	0.784	
EI	-0.179	-0.068	-0.476	0.635	-0.09	-0.037	-0.278	0.781	
SIxEI	0.336	0.089	0.63	0.530	0.193	0.051	0.394	0.695	
AMI	-0.015	-0.008	-0.081	0.936	0.259	0.142	1.396	0.166	
R²	Adjusted R²	F(4,101)	Sig.		R²	Adjusted R²	F(4,101)	Sig.	
.005	-.034	.125	.973		.022	-.017	0.574	.682	

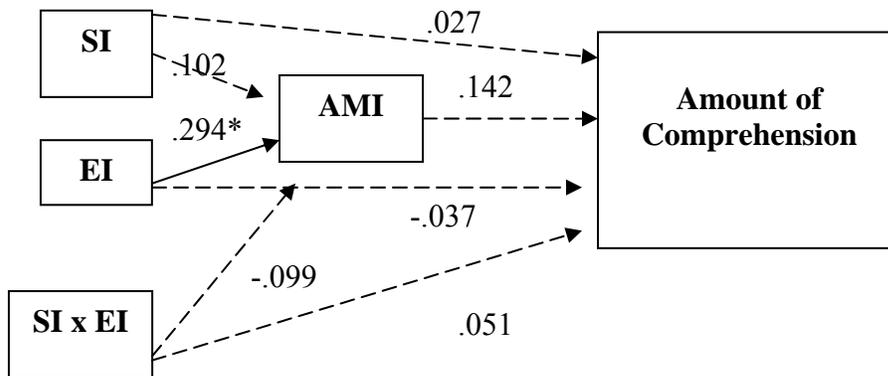
Laptop Ad					Digital Camera Ad				
DV:AMI	Unstandardized				Unstandardized				
	Coefficient (B)	Beta	t	Sig.	Coefficient (B)	Beta	t	Sig.	
Constant	4.322		13.393	0.000	4.073		13.58	0.000	
SI	0.147	0.032	0.316	0.753	0.182	0.042	0.421	0.675	
EI	-0.181	-0.068	-0.486	0.628	0.012	0.005	0.038	0.970	
SIxEI	0.333	0.088	0.628	0.531	0.14	0.037	0.285	0.777	
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.	
.005	-.024	.116	.919		.003	-.026	0.115	.951	

Laptop Ad					Digital Camera Ad				
DV:AMI	Unstandardized				Unstandardized				
	Coefficient (B)	Beta	t	Sig.	Coefficient (B)	Beta	t	Sig.	
Constant	4.395		25.455	0.000	4.924		30.925	0.000	
SI	0.37	0.144	1.486	0.140	0.244	0.102	1.065	0.290	
EI	0.141	0.096	0.705	0.483	0.396	0.294	2.345	0.021	
SIxEI	0.207	0.099	0.73	0.467	-0.205	-0.099	-0.789	0.432	
R²	Adjusted R²	F(3,102)	Sig.		R²	Adjusted R²	F(3,102)	Sig.	
.061	.033	2.212	.091		.069	.042	2.521	.062	

Figure 5.6: Testing Mediation for H3



Digital Camera Ad



* $p < .05$, ** $p < .01$, *** $p < .001$

H3 (Manipulation #2)

In line with H3 under manipulation #1, H3 under manipulation #2 condition examines both a simple relationship between AMI and the comprehension and mediation process involving antecedent involvement types (SI, EI and SIxEI), AMI and the amount of comprehension via simple regression and moderated regression analyses.

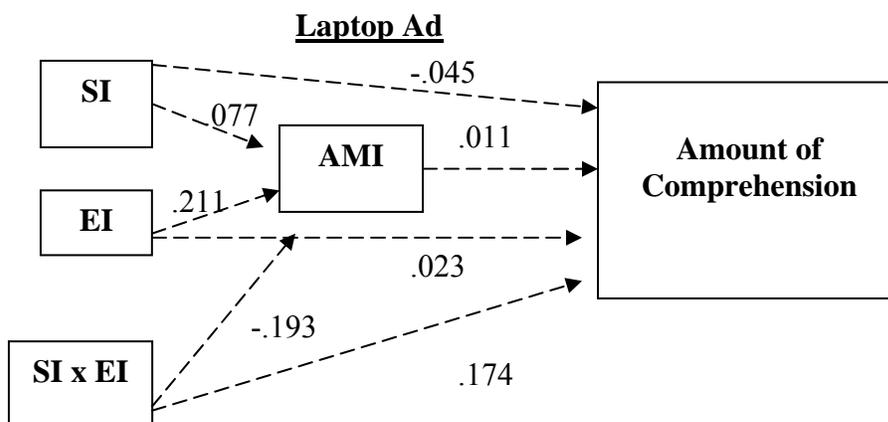
Analyses of simple regression analyses for laptop ad and digital camera ad are provided in Table 5.9. As indicated in the Table, there is statistically significant positive relationship between AMI and the amount of comprehension concerning the digital camera ad ($p < .05$). However, there is no statistically significant relationship between AMI and the amount of comprehension concerning laptop ad.

Table 5.9: H3 (Amount of comprehension=AMI (Manipulation #2))

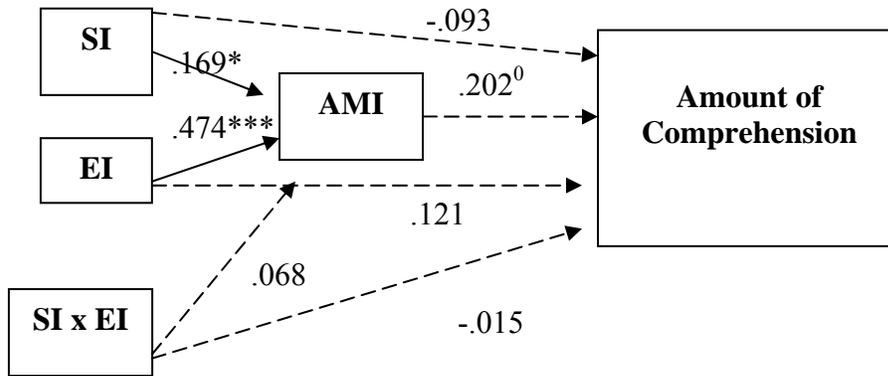
	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.607		22.076	0.000	4.034		20.6	0.000
AMI	0.004	0.002	0.021	0.983	0.396	0.241	2.665	0.009
R²	Adjusted R²	F(1,115)	Sig.		R²	Adjusted R²	F(1,115)	Sig.
.000	-.009	.000	.983		.058	.050	7.100	.009

In addition to the simple regression analyses examined to test a potential positive relationship between AMI and the amount of comprehension with regard to laptop ad and digital camera ad, three separate multiple regression analyses are carried out to examine the potential mediation process. Results of the analyses are provided in Table 5.10 and depicted in Figure 5.7. Only marginally significant mediation is observed under digital camera ad condition. However, there is no indication of mediation process under laptop ad condition.

Figure 5.7: SI Manipulation (Local Availability & Purchase Intention)



Digital Camera Ad



⁰p<.1, *p<.05, **p<.01, ***p<.001

Table 5.10: H3 (SI, EI)→AMI→Amount of Comprehension (Manipulation #2)

Laptop Ad					Digital Camera Ad				
DV: Compre	Unstandardized	Beta	t	Sig.	Unstandardized	Beta	t	Sig.	
hension	Coefficient (B)				Coefficient (B)				
Constant	4.727		15.5860	0.000	Constant	4.249	14.5920	0.000	
SI	-0.202	-0.045	-0.485	0.629	SI	-0.401	-0.994	0.322	
EI	0.067	0.023	0.168	0.867	EI	0.281	0.838	0.404	
SIxEI	0.696	0.174	1.27	0.207	SIxEI	-0.048	-0.112	0.911	
AMI	0.021	0.011	0.117	0.907	AMI	0.332	1.834	0.069	
R²	Adjusted R²	F(4,112)	Sig.		R²	Adjusted R²	F(4,112)	Sig.	
.039	.005	1.143	.340		.076	.043	2.292	.064	

Laptop Ad					Digital Camera Ad				
DV: AMI	Unstandardized	Beta	t	Sig.	Unstandardized	Beta	t	Sig.	
	Coefficient (B)				Coefficient (B)				
Constant	4.724		15.677	0	Constant	4.168	14.332	0.000	
SI	-0.198	-0.044	-0.479	0.633	SI	-0.253	-0.634	0.528	
EI	0.074	0.395	0.187	0.852	EI	0.503	1.593	0.114	
SIxEI	0.687	0.54	1.272	0.206	SIxEI	-0.004	-0.01	0.992	
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.	
.039	.014	1.533	.210		.048	.023	1.895	.134	

Laptop Ad					Digital Camera Ad				
DV: AMI	Unstandardized	Beta	t	Sig.	Unstandardized	Beta	t	Sig.	
	Coefficient (B)				Coefficient (B)				
Constant	4.664		29.18	0.000	Constant	4.664	31.189	0.000	
SI	0.182	0.077	0.828	0.410	SI	0.446	2.171	0.032	
EI	0.325	0.211	1.549	0.124	EI	0.67	4.123	0.000	
SIxEI	-0.408	-0.193	-1.422	0.158	SIxEI	0.131	0.593	0.554	
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.	
.028	.002	1.070	.367		.320	.302	17.740	.000	

H4a (Manipulation #1): Amount of Elaboration=f(SI,EI)

H4a postulates that the amount of elaboration is a function of SI, EI and an interactive function of SIxEI. To test H4a, the amount of elaboration is regressed on SI, EI and SIxEI.

The results of the moderated regression analyses in Table 5.11 indicate that the joint function of SI and EI has no statistically significant relationship with the amount of elaboration regarding laptop ad ($F= .638, p>.05$) and with the amount of elaboration regarding digital camera ad ($F=.338, p>.05$). This suggests tests of b coefficients of independent variables (SI, EI, SIxEI) are not relevant. Therefore, H4a is not supported under manipulation #1 condition.

Table 5.11: H4 (SI, EI)→AMI→Amount of Elaboration (Manipulation #1)

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	1.161		5.4500	0.000	2.026		8.468	0.000
SI	0.102	0.033	0.33	0.742	-0.192	-0.055	-0.554	0.581
EI	-0.265	-0.149	-1.079	0.283	-0.131	-0.066	-0.504	0.616
SIxEI	0.387	0.153	1.11	0.270	0.361	0.119	0.921	0.359
AMI	0.235	0.194	1.943	0.055	0.222	0.152	1.496	0.138
R²	Adjusted R²	F(4,101)	Sig.	R²	Adjusted R²	F(4,101)	Sig.	
.054	.016	1.436	.228	.031	-.007	0.816	.518	
	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	1.120		5.199	0.000	2.000		8.331	0.000
SI	0.189	0.061	0.612	0.542	-0.138	-0.039	-0.397	0.692
EI	-0.231	-0.130	-0.933	0.353	-0.0423	-0.022	-0.169	0.866
SIxEI	0.436	0.172	1.240	0.219	0.315	0.104	0.802	0.424
R²	Adjusted R²	F(3,102)	Sig.	R²	Adjusted R²	F(3,102)	Sig.	
.018	-.010	.638	.592	.010	-.019	0.338	.798	
	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	1.24		8.259	0.000	1.934		11.351	0.000
AMI	0.243	0.200	2.078	0.040	0.207	0.141	1.461	0.147
R²	Adjusted R²	F(1,104)	Sig.	R²	Adjusted R²	F(3,102)	Sig.	
.040	.031	4.316	.040	.020	.011	2.137	.147	

H4b (Manipulation #1): Amount of Elaboration=f(SI,EI, AMI)

H4b examines mediation process, where AMI may play a role of mediator. Specifically, H4b states that the amount of elaboration is a partial function of the mediating role of AMI and interactive function of SI and EI.

The results of the moderated regression analyses indicate that joint function of SI, EI and AMI has no statistically significant relationship with the amount of elaboration of laptop computer ad and digital camera ad ($p > .05$).

When the amount of elaboration is regressed on AMI only there is statistically significant relationship between AMI and the amount of elaboration of laptop computer ad, $F(1,104)=4.316$, $p < .05$.

H4a (Manipulation #2): Amount of Elaboration=f(SI,EI)

H4a postulates that the amount of elaboration is a function of SI, EI and an interactive function of SIxEI. To test H4a, the amount of elaboration is regressed on SI, EI and SIxEI.

The results of the moderated regression analyses in Table 5.12 indicate that the joint function of SI and EI has no statistically significant relationship with the amount of elaboration regarding laptop ad ($F = .801$, $p > .05$) and with the amount of elaboration regarding digital camera ad ($F = 1.122$, $p > .05$). This suggests tests of b coefficients of independent variables (SI, EI, SIxEI) are not relevant. Therefore, H4a is not supported under manipulation #2 condition.

Table 5.12: H4 (SI, EI)→AMI→Amount of Elaboration (Manipulation #2)

DV: Elaboration	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
(Constant)	1.633		6.804	0.000	1.675		7.735	0.000
SI	-0.370	-0.105	-1.122	0.264	-0.073	-0.023	-0.243	0.809
EI	0.260	0.113	0.818	0.415	0.028	0.017	0.114	0.909
SIxEI	-0.431	-0.137	-0.994	0.323	0.125	0.054	0.397	0.692
AMI	0.071	0.048	0.503	0.616	0.245	0.202	1.818	0.072
R²	Adjusted R²	F(4,112)	Sig.		R²	Adjusted R²	F(4,112)	Sig.
.023	-.012	.660	.621		.057	.023	1.685	.158
DV: Elaboration	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
(Constant)	1.625		6.808	0.000	1.616		7.472	0.000
SI	-0.357	-0.102	-1.090	0.278	0.036	0.011	0.122	0.903
EI	0.283	0.123	0.903	0.369	0.192	0.113	0.819	0.414
SIxEI	-0.460	-0.147	-1.073	0.285	0.158	0.068	0.494	0.623
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.
.021	-.005	.801	.496		.023	.003	1.122	.343
DV: Elaboration	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
(Constant)	1.444		8.832	0.000	1.641		11.350	0.000
AMI	0.079	0.053	0.571	0.569	0.278	0.229	2.529	0.013
R²	Adjusted R²	F(1,115)	Sig.		R²	Adjusted R²	F(1,115)	Sig.
.003	-.006	.326	.569		.053	.044	6.394	.013

H4b (Manipulation #2):(Amount of Elaboration=f(SI,EI, AMI)

H4b examines mediation process, where AMI may play a role of mediator. Specifically, H4b states that the amount of elaboration is a partial function of the mediating role of AMI and direct and positive moderating function of SI and EI. The results of the moderated regression analyses indicate that joint function of SI, EI and AMI has no statistically significant relationship with the amount of elaboration of laptop computer ad and digital camera ad ($p > .05$).

When the amount of elaboration is regressed on AMI only there is statistically significant relationship between AMI and the amount of elaboration of digital camera ad, $F(1,115)=6.394, p<.05$.

H5 (Amount of Information Search= $f(SI, EI)$; $f(SI, EI, AMI)$)

H5 states that the amount of information search is determined by the joint function of SI and EI. Specifically, H5a examines if the amount of information search is interactive function of SI and EI. In addition to testing this postulated moderation between SI and EI on the amount of information search, H5b tests if there is a mediating effect of AMI between the antecedent involvement types (SI, EI and SIxEI) and the amount of information search.

H5a (Manipulation #1): Information Search Intention = $f(SI, EI)$

H5a states that “the amount of information search is a positive function of SI, EI and an interactive function of SIxEI.” To test H5a, the amount of information search is regressed on SI, EI and SIxEI.

The results of analyses indicate that the joint function of SI and EI has no statistically significant relationship with the amount of information search intention for laptop computer, ($F=1.77, p>.05$). Therefore, tests of b coefficients are not relevant. That is, the statistically significant difference between high and low SI subjects with regard to the amount of information search intention under laptop ad condition is not relevant. Also, there is no statistically significant influence of SI, EI and SIxEI on the amount of information search intention under digital camera ad, ($F= 1.11, p>.05$).

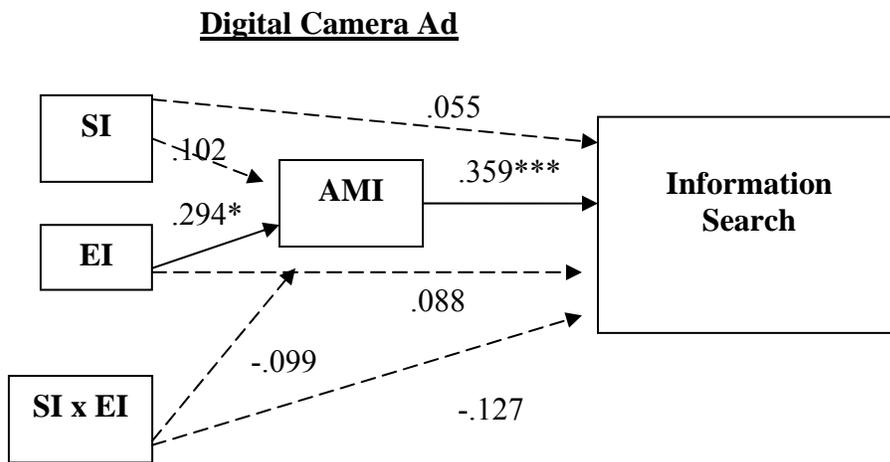
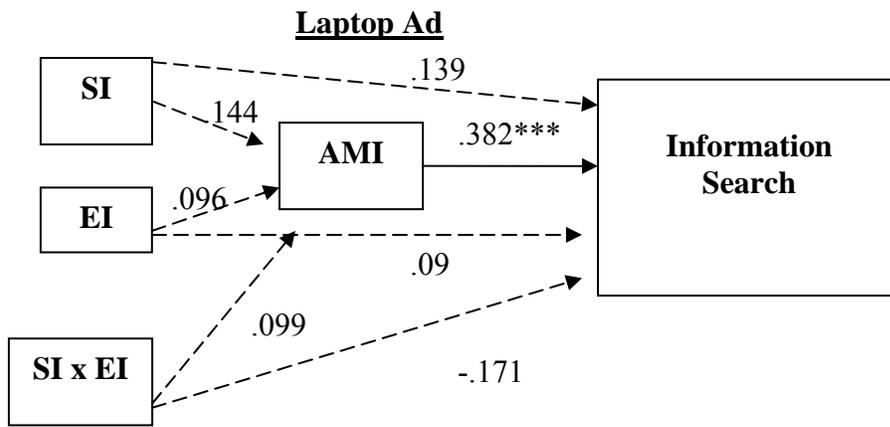
Table 5.13: H5a (SI, EI)→Amount of Information Search Intention (Manipulation #1)

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.247		35.267	0	4.309		34.908	0.000
SI	0.346	0.195	1.991	0.049	0.168	0.092	0.943	0.348
EI	0.129	0.127	0.923	0.358	0.198	0.194	1.513	0.133
SIxEI	-0.193	-0.133	-0.975	0.332	-0.256	-0.162	-1.269	0.207
R²	Adjusted R²	F(3,102)	Sig.	R²	Adjusted R²	F(3,102)	Sig.	
.049	.021	1.768	.158	.032	.003	1.108	.349	

H5b: Information Search Intention= f(SI,EI,AMI)

H5b examines mediation process, where AMI may play a role of mediator. Specifically, H5b states that the amount of information search intention is a partial function of the mediating role of AMI and interactive function of SI and EI. Analyses of mediation analyses suggest that AMI influence the level of the information search intention for both laptop (t=4.12, p<.001) and digital camera (t=3.78, p<.001), respectively. See Table 5.14 and Figure 5.8. In other words, the results indicate that there is a positive relationship between AMI and the amount of information search intention for digital camera ad, independently of the role of the antecedent involvement types (SI, EI and SIxEI). Therefore, H5b is not supported.

Figure 5.8: Testing Mediation (H5)



* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5.14: H5b (SI, EI)→AMI→Amount of Information Search Intention (Manipulation #1)

	Laptop Ad				Digital Camera Ad			
DV:								
Information Search	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.298		38.1550	0.000	4.341		37.2860	0.000
SI	0.248	0.139	1.518	0.132	0.101	0.055	0.601	0.549
EI	0.091	0.09	0.704	0.483	0.09	0.088	0.713	0.478
SIxEI	-0.248	-0.171	-1.343	0.182	-0.2	-0.127	-1.051	0.296
AMI	0.265	0.382	4.122	0.000	0.273	0.359	3.777	0.000
R²	Adjusted R²	F(4,101)	Sig.	R²	Adjusted R²	F(4,101)	Sig.	
.186	.154	5.782	.000	.151	.118	4.506	.002	

	Laptop Ad				Digital Camera Ad			
DV:								
Information Search	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.247		35.267	0	4.309		34.908	0.000
SI	0.346	0.195	1.991	0.049	0.168	0.092	0.943	0.348
EI	0.129	0.127	0.923	0.358	0.198	0.194	1.513	0.133
SIxEI	-0.193	-0.133	-0.975	0.332	-0.256	-0.162	-1.269	0.207
R²	Adjusted R²	F(3,102)	Sig.	R²	Adjusted R²	F(3,102)	Sig.	
.049	.021	1.768	.158	.032	.003	1.108	.349	

	Laptop Ad				Digital Camera Ad			
DV:AMI								
Information Search	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.395		25.455	0.000	4.924		30.925	0.000
SI	0.37	0.144	1.486	0.140	0.244	0.102	1.065	0.290
EI	0.141	0.096	0.705	0.483	0.396	0.294	2.345	0.021
SIxEI	0.207	0.099	0.73	0.467	-0.205	-0.099	-0.789	0.432
R²	Adjusted R²	F(3,102)	Sig.	R²	Adjusted R²	F(3,102)	Sig.	
.061	.033	2.212	.091	.069	.042	2.521	.062	

H5a (Manipulation #2): Information Search Intention = f(SI, EI)

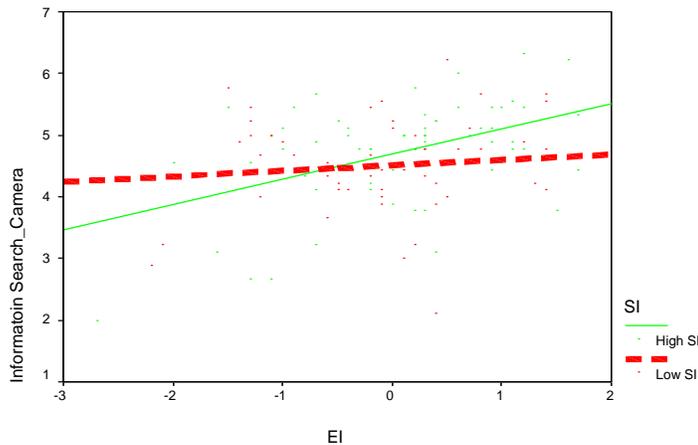
H5a examines the joint function of SI, EI and SIxEI on the amount of information search intention under manipulation #2 conditions. Specifically, it tests if the impact of EI on the information search intention is dependent on the level of SI or vice versa. Results of the analyses are provided in Table 5.15. As postulated, there is an interaction between SI and EI on their impact on the level of information search intention for digital camera. Specifically, the finding suggests that there is a disordinal interaction between SI

and EI on their impact on the level of information search intention. Under low SI condition, information search is not affected by the level of EI ($p > .05$). However, under high SI condition, information search is positively influenced by the level of EI ($p < .001$). It suggests that there is an indication of interactive magnification function of SI and EI, rather than interactive ceiling function between SI and EI. With regard to laptop information search intention, however, there are only marginally significant relationship between SI, EI and the information search intention ($p < .1$). Therefore, H5a is supported for digital camera information search intention only.

Table 5.15: H5a (SI, EI) → Amount of Information Search Intention (Manipulation #2)

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	4.586		55.472	0	4.508		43.245	0.000
SI	0.194	0.156	1.71	0.09	0.188	0.115	1.313	0.192
EI	0.205	0.252	1.889	0.061	0.089	0.102	0.787	0.433
SIxEI	-0.082	-0.073	-0.55	0.584	0.319	0.267	2.073	0.040
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.
.063	.038	2.543	.060		.140	.118	6.153	.001

Figure 5.9: Interaction between SI and EI on Information Search Intention



H5b: Information Search Intention= f(SI,EI, AMI)

H5b examines mediation process to test if the initial interaction effect of SI and EI on the amount of information search is mediated via AMI. Specifically, H5b states that the amount of information search is a partial function of the mediating role of AMI and interactive function of SI and EI. Mediation analyses are carried out to examine the role of AMI between the antecedent involvement types and the amount of information search intention for laptop and digital camera via a series of moderated regression analyses. Results of analyses are provided in Table 5.16 and Figure 5.10.

The results indicate that, under digital camera condition, H5b is supported. Specifically, there is an indirect influence of SI and EI on the amount of information search intention for digital camera while there is direct effect of SI and EI interaction on the amount of information search intention. These results suggest that while AMI works as a mediator between the antecedent involvement types (SI and EI) and the amount of information search regarding digital camera there is a joint function of SI and EI beyond their impact via AMI on the amount of information search. With regard to laptop ad, however, there is no statistically significant evidence of mediation processes.

Table 5.16: H5b (SI, EI)→AMI→Amount of Information Search Intention (Manipulation #2)

Laptop Ad					Digital Camera Ad				
DV:	Unstandardized				Unstandardized				
Information Search	Coefficient (B)	Beta	t	Sig.	Coefficient (B)	Beta	t	Sig.	
Constant	4.603		58.1830	0.000	Constant	4.545	43.9730	0.000	
SI	0.165	0.133	1.518	0.132	SI	0.12	0.073	0.838	
EI	0.153	0.189	1.463	0.146	EI	-0.012	-0.015	-0.107	
SIxEI	-0.017	-0.015	-0.116	0.908	SIxEI	0.299	0.251	1.979	
AMI	0.159	0.302	3.42	0.001	AMI	0.152	0.245	2.367	
R²	Adjusted R²	F(4,112)	Sig.		R²	Adjusted R²	F(4,112)	Sig.	
.152	.122	5.012	.001		.181	.152	6.203	.000	
Laptop Ad					Digital Camera Ad				
DV:	Unstandardized				Unstandardized				
Information Search	Coefficient (B)	Beta	t	Sig.	Coefficient (B)	Beta	t	Sig.	
Constant	4.586		55.472	0	Constant	4.508	43.245	0.000	
SI	0.194	0.156	1.71	0.09	SI	0.188	0.115	1.313	
EI	0.205	0.252	1.889	0.061	EI	0.089	0.102	0.787	
SIxEI	-0.082	-0.073	-0.55	0.584	SIxEI	0.319	0.267	2.073	
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.	
.063	.038	2.543	.060		.140	.118	6.153	.001	
Laptop Ad					Digital Camera Ad				
DV:AMI	Unstandardized				Unstandardized				
Information Search	Coefficient (B)	Beta	t	Sig.	Coefficient (B)	Beta	t	Sig.	
Constant	4.664		29.18	0.000	Constant	4.664	31.189	0.000	
SI	0.182	0.077	0.828	0.410	SI	0.446	0.169	2.171	
EI	0.325	0.211	1.549	0.124	EI	0.67	0.474	4.123	
SIxEI	-0.408	-0.193	-1.422	0.158	SIxEI	0.131	0.068	0.593	
R²	Adjusted R²	F(3,113)	Sig.		R²	Adjusted R²	F(3,113)	Sig.	
.028	.002	1.070	.367		.320	.302	17.740	.000	

H6 postulates that under low SI condition, attitude formation is a negative interactive function of peripheral/heuristic processing and the level of EI among consumers, while under high SI condition, attitude formation is a positive interactive function of central/systematic processing and the level of EI among consumers.

H6a (Manipulation #1)

H6a examines if the strength of the relationship between peripheral/heuristic processing and attitude formation under low SI condition is dependent along the level of

EI. Specifically, H6a postulates that there is a negative function of EI on the relationship between peripheral/heuristic processing and attitude formation as depicted in Figure 5.10.

To test H6a, moderated regression analyses are used as well. Attitude formation is regressed on peripheral/heuristic processing, EI and the product term of the two.

Results of the analyses for both laptop and digital camera attitude are provided in Table 5.17. The results indicate that there is statistically significant positive effect of EI on the formation of attitude toward laptop ad ($t=3.50$, $p<.01$) and digital camera ad ($t=2.58$, $p<.05$). Contrary to the expectation, there is no indication of the relationship between peripheral/heuristic processing and the attitude formation under low SI condition. Further, while there is a negative value of b coefficient for the interaction between EI and peripheral/heuristic processing, the postulated negative interaction between peripheral processing and EI is not statistically significant for laptop and digital camera ads.

Table 5.17: H6a (Peripheral/Heuristic Processing, EI)
 → Attitude Formation (Manipulation #1)

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	6.877		37.536	0.000	7.834		65.21	0.000
EI	0.764	0.448	3.499	0.001	0.33	0.341	2.581	0.013
Heuristic Processing	0.681	0.293	1.95	0.057	0.624	0.178	1.060	0.294
EI x Heuristic Processing	-0.685	-0.165	-1.088	0.282	-0.649	-0.166	-1.003	0.320
R²	Adjusted R²				R²			
.216	.170				.163			
	F(3,51)				F(3,51)			
	.006				.027			

H6b (Manipulation #1)

H6b examines if the strength of the relationship between central/systematic processing and attitude formation under high SI condition is dependent along the level of EI. Specifically, H6b postulates that there is a positive function of EI on the relationship between central/systematic processing and attitude formation. The results, as shown in Table 5.18, indicate that there is an indication of systematic processing for laptop product attitude ($t=3.87$, $p<.001$). However, there is no statistically significant relationship between systematic processing and digital camera product attitude ($t=0.892$, $p>.05$). Rather, EI has a statistically significant influence on the product attitude toward the digital camera ad ($t=2.02$, $p<.05$) independent of the role of systematic processing.

Table 5.18: H6b (Central/Systematic Processing, EI)→Attitude Formation (Manipulation #1)

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	6.786		40.565	0.000	7.584		47.665	0.000
EI	0.013	0.008	0.068	0.946	0.384	0.284	2.024	0.049
Systematic Processing	0.565	0.494	3.871	0.000	0.090	0.134	0.892	0.377
EI x Systematic Processing	0.255	0.174	1.345	0.185	0.015	0.018	0.123	0.903
R²	Adjusted R²	F(3,47)	Sig.	R²	Adjusted R²	F(3,47)	Sig.	
.334	.291	7.849	.000	.119	.062	2.108	.112	

H6a (Manipulation #2)

H6a examines if the strength of the relationship between peripheral/heuristic processing and attitude formation under low SI condition is dependent along the level of

EI. Specifically, H6a postulates that there is a negative function of EI on the relationship between peripheral/heuristic processing and attitude formation. To test H6a, moderated regression analyses are used as well. Attitude formation is regressed on peripheral/heuristic processing, EI and the product term of the two.

Results of the analyses for both laptop and digital camera attitude are provided in Table 5.19. The results indicate that there is statistically significant positive effect of EI on the formation of attitude toward digital camera ad ($t=2.94$, $p<.01$). However, the hypothesized interaction between peripheral/heuristic processing and EI is not found for both laptop and digital camera ad.

Table 5.19: H6a (Peripheral/Heuristic Processing, EI)

→Attitude Formation (Manipulation #2)

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	6.885		31.328	0.000	7.305		43.861	0.000
EI	0.081	0.039	0.282	0.779	0.543	0.395	2.939	0.005
Heuristic Processing	0.187	0.058	0.416	0.679	-0.224	-0.075	-0.465	0.644
EI x Heuristic Processing	-1.146	-0.130	-0.937	0.353	0.097	0.027	0.171	0.865
R²	Adjusted R²	F(3,51)	Sig.	R²	Adjusted R²	F(3,51)	Sig.	
.024	-.034	.411	.746	.175	.126	3.601	.020	

H6b (Manipulation #2)

H6b examines if the strength of the relationship between central/systematic processing and attitude formation under high SI condition is dependent along the level of EI. Specifically, H6b postulates that there is a positive function of EI on the relationship

between central/systematic processing and attitude formation. To test H6b, moderated regression analyses are utilized. Attitude formation is regressed on central/systematic processing, EI and the product term of the two.

The results of the moderated regression analyses provided in Table 5.20 indicate that there is statistically significant interaction between central processing and the level of EI on attitude formation. Contrary to the expectation of H6b, there is a negative interaction between central processing and the level of EI on attitude formation regarding the digital camera ad, while no such interaction is found for the laptop computer ad. Specifically, for the digital camera ad, the slope of the regression of attitude formation on the central processing decreases as the level of EI increases.

Table 5.20: H6b (Central/Systematic Processing, EI)→Attitude Formation (Manipulation #2)

	Laptop Ad				Digital Camera Ad			
	Unstandardized Coefficient (B)	Beta	t	Sig.	Unstandardized Coefficient (B)	Beta	t	Sig.
Constant	6.853		38.829	0.000	7.693		58.225	0.000
EI	0.098	-0.051	-0.423	0.674	0.371	0.294	2.573	0.013
Systematic Processing	0.583	0.483	3.763	0.000	0.324	0.403	3.335	0.001
EI x Systematic Processing	0.085	0.060	0.478	0.634	-0.220	-0.259	-2.173	0.034
R²	Adjusted R²	F(3,58)	Sig.		R²	Adjusted R²	F(3,58)	Sig.
.231	.191	5.805	.002		.313	.278	8.820	.000

CHAPTER VI

DISUCSSION

This study complements and extends prior involvement research in advertising by examining the interrelationship among different involvement types and cognitive and behavioral processes. Empirical evidence of this study provides initial evidence of complex interrelationships among SI, EI, AMI and RI in the context of advertising.

In most advertising communication settings, a combination of various involvement factors along with other predispositional factors and advertising executional factors determine the nature of the information processing of the ads rather than one involvement variable acting in isolation. Although the effects of different involvement variables in the context of advertising effects have been investigated (see Muehling et al. 1993 for a review), there is still a shortage of studies examining the potential interactions or joint effect studies, where multiple involvement variables are combined to understand more subtle nature of the roles involvement plays in how advertising works.

While a handful of researchers (Houston and Rothschild 1978; Parkinson and Schenk 1980; Arora 1982; Slama and Tashchian 1987; Beatty, Kahle and Homer 1988; Celsi and Olson 1988; Richins, Bloch and McQuarrie 1992; Dholakia 1998; Laczninak, Kempf and Muehling 1999) have acknowledged the need to clarify the joint relationships of SI, EI, AMI and/or RI. To date, however, there is still a shortage of studies as to how SI and EI contribute to the formation of AMI, and as to whether SI and/or EI are

sufficient to predict the level of AMI. In addition, the formation of RI via SI, EI and AMI are still underexplored. Furthermore, it is not known how SI and EI jointly influence the types of qualitatively different processes (central/systematic vs. peripheral/heuristic).

Although the literature on involvement types has provided conceptual ground to advance to the point where model development is possible, several recent attempts to test involvement frameworks have not taken full advantage of these conceptual, operational, and statistical advances in their formulation of the models tested (Arora 1982; Beatty et al. 1988; Celsi and Olson 1988; Dholakia 1998; Laczniak et al. 1999; Richins et al. 1992; Slama and Taschchian 1987). As a result, our understanding of the interrelationship among involvement types is still at its infancy.

Therefore, this study examines the interrelationship among four different involvement types. Specifically, it examines how antecedent involvement types such as SI and EI influence cognitive and behavioral efforts (RI) directly and indirectly via the potential mediating function of AMI. In addition to the mediation model, the potential moderating roles of SI and EI on AMI and RI are further assessed via moderated regression analysis rather than ANOVA type analysis.

Thus, the current study seeks to fill in the gaps of previous involvement research by investigating the impact of the various types of involvement. Therefore, by examining the interrelationships among different types of involvement, results from the current study provide insights into the roles of different types of involvement in determining the cognitive and behavioral efforts consumers are willing to exert in an advertising context.

As a result, the current study provides an initial framework that permits similarities, differences and interrelationship of different involvement types to become apparent by including both moderating and mediating models in the investigation.

Previous studies dealing with AMI have mostly relied on manipulation of SI without considering the impact of the joint role of EI and SI. However, research shows that AMI is not only influenced by SI manipulation, but it is also a partial function of EI beyond the role played by SI (Celsi and Olson 1988; Laczniak et al. 1999). Thus, by manipulating SI alone, current understanding of AMI is largely limited and the role of SI have been overstated. In addition, due to the popularity of dichotomization of EI to test potential moderating role of EI, current understanding of the joint involvement studies need to be revisited with more psychometrically sound approach via moderated regression analyses.

While a number of researchers have speculated potential interaction effects of SI and EI on the level of AMI and/or RI (Andrews et al.1990; Celsi and Olson 1988; Laczniak et al. 1999), to date, empirical evidence mainly supports the straightforward additive function of SI and EI on AMI and/or RI (Celsi and Olson 1988; Laczniak et al. 1999; Richins et al. 1992).

While inconclusive this study provides initial evidence of joint relationships among different involvement constructs in two different situational contexts, commonly found in an advertising context.

ADVERTISING MESSAGE INVOLVEMENT (AMI)

To date, most studies have dealt AMI as synonymous as SI conceptually and/or operationally. This stream of tradition is in part from the popularity of ELM and HSM which are formulated in social psychological context. The current study suggests that direct application of ELM and HSM-inspired studies in the advertising context without detailed scrutiny may result in erroneous conclusion regarding the role of SI and/or AMI in advertising context. Unlike in social psychology, advertising context usually does not generate extremely high level of SI by situational characteristics alone. Practically what advertisers and marketers can do to increase the level of SI and/or AMI is limited to varying the creative tactics, new product offerings, brand differentiation, etc. Consumers in general have relatively low level of motivation to process advertising messages by marketing/advertising activities alone. By taking into account of this obvious difference in social psychology and advertising, this study tests two different sets of SI manipulation, which are strong enough to pass manipulation checks, commonly utilized in marketing and advertising, while meeting the realistic SI in advertising context.

In addition to examining the relative importance of SI in advertising context, more important question is addressed by taking into account of the current conceptual advancement in advertising and marketing (Celsi and Olson 1988, Laczniak et al. 1999). These two studies suggest that AMI is a function of SI and EI. As pointed by Laczniak et al. (1999), manipulation of SI alone cannot satisfactorily vary the level of AMI due to the function of individual difference factors such as EI. While a number of researchers have speculated potential interaction effects of SI and EI on the level of AMI (Andrews et al.

1990, Celsi and Olson 1988, Laczniaak et al. 1999), to date, the empirical evidence mainly supports the straightforward additive function of SI and EI on AMI. However, the additive function of SI and EI on AMI is overly simplistic to accept from the conceptual point of view. Hence, the potential joint function of SI and EI on AMI is revisited due to the methodological limitations in the past studies. Specifically, while Celsi and Olson (1988) test both main and interaction effects of SI and EI on AMI. They do not use the full information in EI. Instead, they arbitrarily dichotomize EI via a median-split for ANOVA. Second, Laczniaak et al. (1999) utilize regression analyses to test the joint influence of SI and EI on AMI, thus preserving the information of EI. However, omission of the interaction term of SI and EI in their analyses does not allow testing the potential interaction between SI and EI on AMI. Based on these conceptual and methodological reasoning, the current study attempts to examine the joint function of SI and EI on AMI via moderated regression analysis to extend and complement past joint involvement studies.

This study hypothesizes that under manipulation #2, the joint function of SI and EI on the level of AMI is additive while under manipulation #1, the joint function of SI and EI on AMI is interactive. The formulation of the hypothesis is based on the reasoning that even the same situational source of personal relevance (SI) would be differentially perceived by subjects depending on the level of EI. Further, the current study asserts that the interdependence of SI and EI on AMI would be apparent when the strength of SI is relatively weaker, which is the case for the manipulation #1.

As hypothesized under manipulation #2 (strong manipulation of SI with larger between group variance), there is only additive impact of SI and EI on the level of AMI for digital camera ad. This result is in line with the past study (Celsi and Olson 1988). In addition, relatively stronger influence of EI on AMI is observed as is evident by the larger beta weight of EI (.474), compared to SI (.169). This suggests that while most past studies dealing with AMI have treated SI synonymously as AMI implicitly and explicitly, thus overstating the role of SI more than the potential role of EI, the current study suggests that it could be more appropriate for advertising and marketing researchers to take a serious consideration of EI over SI.

However, statistically significant influence of SI and EI on AMI is only observed for digital camera ad. This lack of statistical significance for the laptop ad might be due to the narrow range of EI variance observed, compared to EI variance of digital camera. In addition, it may be that digital camera seems to be associated with hedonic pleasure while laptop computer might be a product of functional/utilitarian nature. As a result, interests and personal relevance of the advertising message might be lower for laptop computers than those of digital cameras. In addition, while the student population is key target audiences for laptop computer, limiting the scope of EI among student subjects inevitably results in the restriction in range, which in turn reduces the statistical power to detect any statistical significance.

Under manipulation #1, it was expected that the joint function of SI and EI would be interactive. Nonetheless, the empirical evidence of the current study indicates otherwise. It is found that only EI is statistically significant factor to the level of AMI for

the digital camera ad while no such findings are observed for laptop computer ad. The possible explanation for this discrepancy between the hypothesis and the results might be that subjects in the study might have relatively high level of EI with little variance. In addition, the artificial nature of experiment might have created a narrow range of the variance of AMI. It is only speculation which requires an empirical test to ascertain these unexpected findings.

While inconclusive this study provides initial evidence of joint relationships among SI, EI and AMI in two different situational contexts, commonly found in an advertising context. In summary, contrary to the overemphasis of SI in the past studies, the results of H1 indicate that SI alone can not satisfactorily predict the level of AMI. Instead, EI is found to be more important predictor to the level of AMI for digital camera ad for both manipulation conditions.

AMOUNT OF ATTENTION

Past involvement framework suggests that SI and EI influence the level of attention consumers exert during evaluation of advertising messages either via mediation of AMI or directly (Houston and Rothschild 1978, Celsi and Olson 1988). Unlike past conceptualization and empirical finding (Celsi and Olson 1988), when the amount of attention to the advertisements in the study is regressed on SI and EI and their interaction term, only EI is responsible for the variation of attention to the digital camera ad under manipulation #2. This lack of correspondence between the past study (Celsi and Olson

1988) and the current research could be due to the different manipulation used to vary situational source of personal relevance (SI). Specifically, While Celsi and Olson (1988) use a sales promotion tactic (lottery) to manipulate SI, the current study manipulate SI by closely following advertising context (see, Laczniak and Muehling 1993). What is noteworthy, however, is that while SI and EI have little influence on the level of attention to advertising messages AMI has statistically significant influence on AMI regardless of manipulation conditions and product types in the current study.

According to Greenwald and Leavitt (1984), attentional capacity is a limited resource that must be used to focus on a specific task. Relating AMI to audience involvement, it can be understood that AMI is an antecedent to the level of audience involvement. Specifically, a high level of AMI provides motivational rationale for deliberate information processing, which requires the amount of limited capacity to increase as the cognitive complexity of an advertising message increases. However, this study suggests that SI and/or EI may or may not satisfactorily predict the level of attention to the ads. Based on the past involvement framework in which AMI is a function of SI and EI, past joint involvement research could be overly simplistic and misleading in terms of the impact of SI and EI on the level of attention to the ads. This study also suggests that stronger empirical evidence of joint relationships of involvement types on attention could only be possible by studies that take AMI into consideration through a mediation model.

This study further supports the concerns against equating SI with AMI. It is more appropriate to treat them separately. Specifically, SI should be treated as an antecedent to

AMI₂ which may or may not influence the level of AMI, and the level of attention to the ad.

The distinction between this study and the one by Celsi and Olson (1988) also lies in the treatment of AMI in data analyses. While Celsi and Olson (1988) suggest that SI and EI indirectly affect RI through the mediation of AMI, their empirical test, however, excludes the direct test between AMI and RI. Rather, they only examine the direct effect of SI, EI and (SI x EI) on AMI and RI in two separate analyses. They do so by treating AMI and RI as dependent measures of SI and EI, thus leaving out the direct assessment of the potential mediating role of AMI on RI. That is, Celsi and Olson (1988) treat the joint function of SI and EI as the equivalent term of AMI, and infer that AMI influences the amount of attention to the ads. However, treating the joint function of SI and EI as AMI could be somewhat problematic since empirical evidence from Celsi and Olson's study suggests that less than 50% of the variance in AMI is shared with the joint function of SI and EI. Thus, although implicitly they have inferred a linkage between AMI and RI, their study lacks explicit linkages among SI, EI, AMI, and RI.

Although it can be speculated that "Felt involvement" or AMI could be highly related to the subsequent cognitive processes in their study, the empirical evidence for the relationship is not reported in their study.

Given that, advertisers and marketers want consumers to pay attention to their ads to change or affect brand beliefs and/or attitudes, advertisers/marketers need to give serious consideration as to how the amount of attention is formed via different types of

involvement. According to the current study, relative to SI and/or EI, AMI is a good indicator to the level of attention.

In addition, based on the mediation analyses of H2, it is found that under manipulation #2, both SI and EI indirectly influence the amount of attention paid to digital camera ad, while only EI, under local availability manipulation of SI, indirectly influence the amount of attention paid to digital camera ad via AMI. However, no indirect and direct influence of SI and EI on the amount of attention paid to ads is found for laptop ad.

In sum, results of H2 suggest that the role of AMI on the amount of attention is observed for all conditions, suggesting the important role of AMI on the amount of attention paid to ads. However, the joint function of SI, EI, SIxEI and AMI is far more complex than is expected.

In line with H2, there is a statistically significant relationship between AMI and the amount of attention paid to ads. There is no direct influence of SI and EI on the amount of attention paid to ads. Specifically, under manipulation #2, the influence of SI and EI on the amount of attention is only observed via the mediating role of AMI. Also, under manipulation #1, it is found that there is an indirect influence of EI on the amount of attention via AMI. However, these mediational relationships are only found for the digital camera ad.

The lack of mediational relationship under laptop ad is in part due to the insignificant relationship between SI, EI, SIxEI and AMI. The results suggest that the previous conceptualization of SI and EI as predictors for RI is oversimplified. Rather, the

results suggest that while SI and EI may influence the amount of attention paid to ads via the mediating role of AMI under a certain type of ad, their joint role on the amount of attention is not found under another type of ad. The results further support the notion that AMI should not be equated with SI. Specifically, AMI predicts the amount of attention paid to ads well for both laptop and digital camera ads under different situational conditions (SI), which may and may not influence the level of AMI.

COMPREHENSION & ELABORATION

Based on the conceptualization and past research, this study predicts that the amount of comprehension and elaboration is joint function of SI, EI and AMI, while AMI plays a role of mediator between the antecedent involvement types and the amount of comprehension and elaboration. While there is a strong relationship between AMI and the amount of attention paid to ads, the amount of comprehension and elaboration is not statistically influenced by the joint function of involvement types for all conditions except for the digital camera ad under manipulation #2. This may suggest that while some previous studies found statistically significant relationship between SI, EI and the amount of comprehension/elaboration (Celsi and Olson 1988) and between AMI and the amount of comprehension/elaboration (Laczniak et al. 1999), SI, EI, and/or AMI might not be a good indicator to account for the variation in the amount of comprehension/elaboration consumers exert during exposure to advertising messages. While different from this study in terms of statistically significant relationship between antecedent involvement types and the amount of comprehension/elaboration, Celsi and

Olson (1988) reveal that relatively smaller influence of the antecedent involvement types on the amount of comprehension/elaboration compared to the amount of attention paid to ads. This suggests that the predictive power of the antecedent involvement types on the amount of comprehension/elaboration is weaker as the level required for audience involvement increases from attention to comprehension and elaboration.

In addition, Laczniak et al.(1999) operationalize AMI via a number of factors that are consequences of perceived personal relevance of the ads such as processing strategy, attention to ads, overall attention paid to ads, in addition to perceived relevance of the advertised messages. While the items used to operationalize AMI in Laczniak et al's study might be highly related to each other, some of the items they use are not AMI per se. Thus, their study has confounded AMI with other related constructs. While it is not the central issue in this study, when amount of elaboration is regressed on the amount of attention paid to ads, which is one component of AMI in Laczniak et al's study (1999), the current study reveals statistically significant relationship between the level of attention and the amount of elaboration ($p < .01$). By treating the level of attention as a component of AMI, the results of this study resembles the one by Laczniak et al. (1999). However, as noted above, equating the level of attention and AMI may obscure conceptual and empirical clarity in involvement research.

INFORMATION SEARCH INTENTION

Amount of attention, comprehension and elaboration during advertising exposure were used for testing different types of audience involvement, a subtype of RI. Information search intention will provide the behavioral aspect of RI.

This study predicts that the level of information search intention is interactive function of SI and EI. Further, this study asserts that the interactive function of SI and EI is partially mediated through AMI, while there still is a direct influence of SI and EI interaction.

To date, however, the joint function of SI and EI on a number of response involvement is additive without interaction between SI and EI (Celsi and Olson 1988, Laczniaak et al. 1999, Richins et al. 1992). This particular study postulates that the lack of empirical evidence suggesting interaction between SI and EI could be in part due to some methodological problems inherent in the past joint involvement studies such as dichotomization of continuous independent variable(s) or survey research at the expense of internal validity.

Specifically, when H5 is tested via moderated regression analyses with a continuous EI, rather than the dichotomized EI via a median split, it is found that there is an interaction between SI and EI on their influence on the level of information search intention for digital camera ad under manipulation #2. However, this interaction effect is not found when median split of EI is used to test the model via ANOVA procedure ($p > .05$). This empirical finding supports the admonition that arbitrarily dichotomizing a continuous measure results in reduction in measurement precision. That is, the

relationships between variables are underestimated, which leads to low statistical power to detect true effects (Irwin and McClelland 2003). These concerns regarding dichotomization of continuous variables should not be taken lightly because most advertising and marketing research uses student sample that is relatively homogeneous to begin with. Thus, this relatively homogeneous sample coupled with dichotomization further results in restriction in range, which may make it extremely difficult to detect interaction effects even if it exists in reality. In addition to these methodological problems inherent in dichotomization, conceptually, the high and low designation along a continuous independent variable is very superficial.

Aside from the methodological problems of dichotomization, survey research in past joint involvement study might have confounded the joint function of SI and EI on information search. Specifically, while Richins et al. (1992) treat EI as a continuous factor in their analyses to test potential interaction effect between SI and EI on RI (i.e. information search, word of mouth, etc), their study does not find statistically significant interaction effect of SI and EI on RI. However, it appears that their conceptualization of the joint function of SI and EI are interactive. The discrepancy between the findings by Richins et al. (1992) and the current study could be attributed to many factors such as difference in sample, survey vs. experiment, different products used, just name a few. Of these, it is suspected that inherent confounding of SI and EI in survey research due to lack of manipulation of SI and random assignment of subjects might be a strong reason for this discrepancy.

Nonetheless, it should be acknowledged that interaction effect of SI and EI on information search is only observed under digital camera ad under manipulation #2. Thus, other conditions are more in line with the study by Richins et al.(1992). As a result, it is still premature to make a firm conclusion that the joint function of SI and EI on the information search intention is interactive or additive. Rather, this study provides initial evidence of interaction effect between SI, EI and the information search intention.

More importantly, when AMI is included in the analyses as a potential mediator between antecedent types of involvement (SI, EI) and information search intention for digital camera ad under manipulation #2, it works as a partial mediator while there is both direct and indirect effect of SI and EI interaction. This finding suggests that the joint function of SI and EI on RI is more complex than the past empirical findings suggest.

It should be acknowledged that the interactive effects of SI and EI on information search intention directly or indirectly through AMI are also dependent upon the type of product and the strength of SI manipulation.

In summary, it is important to find antecedents to AMI given the generally reliable effect of AMI on attention to ads and information search intention under all cases in this particular study. Nonetheless, the current study falls short of predicting the level of comprehension and elaboration based on the models used in the study.

ATTITUDE FORMATION

While it has been widely acknowledged and accepted among advertising researchers that involvement plays an important role in advertising, the empirical

evidence of the impact of involvement on attitude formation is not unequivocal (see Johnson and Eagly 1989; 1990; Muehling et al. 1993). In addition to the contradictory findings concerning the predictive efficacy of ELM and HSM in general, the usefulness of the direct application of ELM and HSM's empirical findings in the advertising and marketing context requires further assessment. Given the difference in focus between social psychology and advertising, it is important to critique, update, refine, extend and/or adapt the notion of ELM and HSM based studies into advertising context. ELM and HSM based studies have significantly advanced our understanding of attitude formation. At the same time, the empirical findings from ELM and HSM have limited the scope of attitude formation study in advertising within SI.

Thus, although ELM and HSM have provided a strong theoretical base for the role of involvement, the gap between social psychological research and advertising research with regard to the strength of realistic involvement manipulation limits direct applicability of ELM and HSM. In other words, the relatively weak situational involvement controlled by advertisers may not be sufficient to predict the route to attitude formation.

In order to enhance the predictive utility of involvement in advertising, not only SI manipulation but also subjects' enduring involvement (EI), which refers to ongoing interests about the product class, should be considered simultaneously.

However, it is not known how SI and EI jointly influence qualitatively different processes (central/systematic vs. peripheral/heuristic). This study is an initial attempt to

study the joint function of involvement types to predict attitude formation in advertising context.

The study predicts that under low SI condition, attitude formation is a negative interactive function of peripheral/heuristic processing and the level of EI among subjects, while under high SI condition, attitude formation is a positive interactive function of central/systematic processing and the level of EI among subjects. Contrary to expectation, under low SI condition, only EI is positively related to the level of attitude concerning the laptop ad and digital camera ad under manipulation #1, while only EI is positively related to the level of attitude about digital camera ad under manipulation #2. It can be speculated that those with higher EI are more likely to appreciate the positive attributes of products advertised in the study. However, influence of heuristic processing or interaction between EI and heuristic processing is not observed. Although not possible to account for these unexpected findings from the current study findings empirically, the lack of empirical evidence concerning heuristic processing and interaction between EI and heuristic processing under low SI condition may be due to the potential dual-role of brand name as heuristic cue and/or product summary information to the subjects. Based on the current empirical evidence it is not clear as to how the brand name has been utilized.

LIMITATIONS AND FUTURE RESEARCH

As is the case for other research in advertising, this study has a number of limitations and raises questions and issues that require further research.

While this study uses two different SI conditions to understand the potential role of different SI manipulation may have on AMI, cognitive, behavioral efforts and attitude formation there are varying degrees and types of SI in advertising context. In addition to the sheer number of potential SI manipulation available, SI manipulation of the current study and the past research is limited to situational sources of personal relevance excluding variation in creative aspects of advertising messages. Given that advertising creative strategy and tactics are an important part of advertising campaign development and consumer information processing of the ads, additional insights from studies investigating variation of creative tactics in joint involvement studies will provide a richer understanding of involvement phenomenon in advertising context to the next level.

Also, current formulation of AMI as a function of SI and EI is overly simplistic to account for the variance of AMI, given that variance explained by SI and EI only explains 35% or less. Even the study results by Celsi and Olson (1988) reveal less than 50% of AMI variance is explained by SI and EI. Hence, in addition to the current conceptualization of AMI as a function of SI and EI, other situational and predispositional factors are required to better explain AMI. Also, it is important to find situational sources of personal relevance (SI) that play an important role on the creation of AMI.

With regard to data analyses, it is found that moderated regression analysis provides better opportunity to detect interaction effects between SI and EI on response involvement. Hence, future research dealing with continuous independent variable(s) that

test potential interaction in involvement research should utilize moderated regression analysis over ANOVA.

Joint function of SI and EI on audience involvement such as attention, comprehension and elaboration is by and large additive. While this study and past study (Celsi and Olson 1988) suggest additive function of SI and EI, it is still premature to conclude that the joint function is only additive. Although there is no theoretical accounts provided in the literature that specify conditions under which additive or interactive function of SI and EI are likely to operate on AMI and response involvement future researchers may need to scrutinize the potential conditions of SI and EI that may provide an interactive function. Given that SI is largely inadequate to explain the variation in AMI and other response involvement, this may suggest there are other moderating factors to account for the complex nature of involvement framework, not tested in this particular study and other past studies.

Concerning the amount of comprehension and elaboration, the current study falls short on satisfactory explanation. It might be fruitful for future researchers to investigate potential antecedents to comprehension and elaboration beyond factors included in this study. Also, while this study concerns only quantity of comprehension and elaboration, recognition and recall of advertising messages may provide different pictures of how involvement types are interwoven to affect recognition of brand and products featured and product attributes recalled correctly.

With regard to information search intention, the results of the study provide somewhat complex findings. While there is initial evidence that under certain conditions

there is an interactive function of SI and EI, which is in turn mediated via AMI to influence information search intention, under other conditions there is only additive function of SI and/or EI on their subsequent influence on AMI and information search intention. Hence, it is important for future researchers to specify conditions under which additive or interactive function of SI and EI are likely to operate.

The usefulness of ELM and HSM to account for attitude formation via different processes, such as central/systematic and peripheral/heuristic processing, is not clear based on the findings in this study. While ELM and HSM have provided a strong theoretical base for the role of SI, the gap between social psychology and advertising research with regard to the strength of realistic involvement manipulation limits direct applicability of ELM and HSM in advertising context. In other words, the relatively weak situational involvement that might be controlled by advertisers may not be sufficient to predict the type of processing consumers may use to form attitude during and after exposure to advertising messages. This study suggests that inclusion of EI provides additional insight into the formation of attitude. However, the hypothesized interaction between processing type and EI is not observed except for one condition. Hence, this uncertainty of the joint function of SI, EI and type of cognitive processing need to be revisited by future researchers to clarify the findings in this study and advance past ELM and HSM based studies in advertising.

Appendix A: Measurement Items

Personal Involvement Inventory (Zaichkowsky 1985)

_____ is		
important	_____ : _____ : _____ : _____ : _____ : _____	Unimportant
of no concern	_____ : _____ : _____ : _____ : _____ : _____	of concern to me
irrelevant	_____ : _____ : _____ : _____ : _____ : _____	relevant
means a lot to me	_____ : _____ : _____ : _____ : _____ : _____	means nothing to me
useless	_____ : _____ : _____ : _____ : _____ : _____	useful
valuable	_____ : _____ : _____ : _____ : _____ : _____	worthless
trivial	_____ : _____ : _____ : _____ : _____ : _____	fundamental
beneficial	_____ : _____ : _____ : _____ : _____ : _____	not beneficial
matters to me	_____ : _____ : _____ : _____ : _____ : _____	doesn't matter
significant	_____ : _____ : _____ : _____ : _____ : _____	insignificant
vital	_____ : _____ : _____ : _____ : _____ : _____	superfluous
boring	_____ : _____ : _____ : _____ : _____ : _____	interesting
unexciting	_____ : _____ : _____ : _____ : _____ : _____	exciting
appealing	_____ : _____ : _____ : _____ : _____ : _____	unappealing
mundane	_____ : _____ : _____ : _____ : _____ : _____	fascinating
essential	_____ : _____ : _____ : _____ : _____ : _____	nonessential
undesirable	_____ : _____ : _____ : _____ : _____ : _____	desirable
wanted	_____ : _____ : _____ : _____ : _____ : _____	unwanted
not needed	_____ : _____ : _____ : _____ : _____ : _____	needed

Enduring Involvement Scale (Hiegie and Feick 1989)

Interesting	____:____:____:____:____:____	Boring
Fun	____:____:____:____:____:____	Not fun
Fascinating	____:____:____:____:____:____	Dull
Exciting	____:____:____:____:____:____	Unexciting
Appealing	____:____:____:____:____:____	Unappealing
Portrays an image image of me to others	____:____:____:____:____:____	Does not portray an of me to others
Part of my self-image	____:____:____:____:____:____	Not part of my self image
Tells others about me me	____:____:____:____:____:____	Doesn't tell others about
Others use to judge me me	____:____:____:____:____:____	Others won't use to judge
Tells me about a person	____:____:____:____:____:____	Shows nothing

Advertising Message Involvement (Laczniak and Muehling 1993)

- (When I saw the ad for the ____, I felt the information in it ...)
- ...might be important to me.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...might be meaningful to me.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...might be for me.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...might be worth remembering.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...might be of value to me.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...might be relevant to my needs.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...might be useful to me.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...might be worth paying attention to.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...might be interesting to me.
Strongly disagree __:__:__:__:__:__ Strongly agree
 - ...would give me new ideas.
Strongly disagree __:__:__:__:__:__ Strongly agree

Amount of Attention (Laczniak and Muehling 1993)

How much attention did you pay to the written message in the _____ ad?
Not at all ____:____:____:____:____:____ Very much

How much did you notice the written message in the _____ ad?
Not at all ____:____:____:____:____:____ Very much

How much did you concentrate on the written message in the _____ ad?
Not at all ____:____:____:____:____:____ Very much

How involved were you with the written message in the _____ ad?
Not at all ____:____:____:____:____:____ Very much

How much thought did you put into evaluating the written message in the _____ ad?
Not at all ____:____:____:____:____:____ Very much

Information Search (Moorthy, Ratchford and Talukdar 1997)

Will you get any relevant information about ____ from friends and family?

Hardly anything ____:____:____:____:____:____:____ Quite a bit

Will you get any relevant information about ____ from manufacturers' brochures and pamphlets?

Hardly anything ____:____:____:____:____:____:____ Quite a bit

Will you get any relevant information about ____ from TV advertisements?

Hardly anything ____:____:____:____:____:____:____ Quite a bit

Will you get any relevant information about ____ from Radio advertisements?

Hardly anything ____:____:____:____:____:____:____ Quite a bit

Will you get any relevant information about ____ from Newspaper advertisements?

Hardly anything ____:____:____:____:____:____:____ Quite a bit

Will you get any relevant information about ____ from magazine reports?

Hardly anything ____:____:____:____:____:____:____ Quite a bit

Will you get any relevant information about ____ from salespersons and dealers?

Hardly anything ____:____:____:____:____:____:____ Quite a bit

Product Attitude (Maheswaran 1994; Malaviya et al., 1996)

Good	_____	Bad
Unfavorable	_____	Favorable
Of high quality	_____	Of low quality
Likable	_____	Dislikable
Not at all useful	_____	Very useful

Manipulation Check: Situational Involvement (Chiken and Maheswaran 1994)

Not at all interested ___:___:___:___:___:___:___ Highly interested

Not at all involved ___:___:___:___:___:___:___ Highly involved

Confounding check: Opportunity to Process (Andrews and Durvasula 1991)

The study coordinator gave me enough time to look at the advertisements

Disagree ___:___:___:___:___:___:___ Agree

The study coordinator gave me enough opportunity to look at the advertisements

Disagree ___:___:___:___:___:___:___ Agree

Relevance (Gurhan-Canli and Maheswaran 2000)

Please indicate the degree to which _____ provided was relevant or irrelevant for your evaluation of the advertised product.

Irrelevant ____:____:____:____:____:____:____ Relevant

Please indicate the degree to which _____ provided was useful in your evaluation of the advertised product.

useful ____:____:____:____:____:____:____ of great use

Please indicate the degree to which _____ provided was indicative of how good or bad the advertised product is.

Not at all indicative ____:____:____:____:____:____:____ Very indicative

Heuristic Cue Favorability (Gurhan-Canli and Maheswaran 2000)

Please indicate your evaluation of _____ by indicating the appropriate number below.
Your general evaluation of _____ is

Negative ___:___:___:___:___:___ Positive

Not at all favorable ___:___:___:___:___:___ Very favorable

Bad ___:___:___:___:___:___ Good

Appendix B: Stimulus Ads

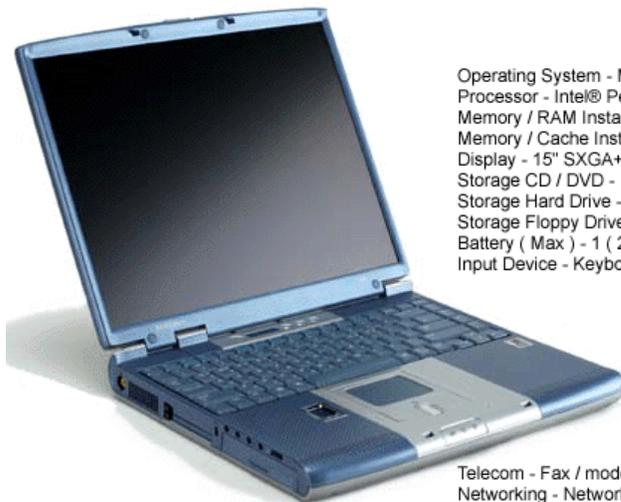


USB: Yes
Infrared: Yes
Wireless: Yes, with optional (third-party) wireless CF modem
Docking cradle: Yes
Warranty: 1 year

64MB RAM storage capacity; 32MB flash ROM
Maximum memory: 64 MB internal + unlimited via CF card
Expansion slot: CompactFlash
Display type: Vibrant, reflective 16-bit color display
Display colors: 65,536 colors
Display size: 2.5 by 3.25 inches
Resolution: 240 X 320 dots
Display backlight: Yes
Processor: 206MHz
Operating system: Microsoft Pocket PC 2002

Made in Japan

Keyboard: Onscreen
User controls: Power on, calendar, memo pad, scroll button
E-mail: Yes
Web browser: Yes
Battery type: Rechargeable lithium-ion battery pack
Batteries included: Yes
Up to 14 hours battery life with the included Li-Polymer (lithium-polymer) battery pack
MS Pocket Word; Pocket Excel; Pocket Outlook
PC system requirements: Microsoft Windows 2000; NT; 95/98 or higher



Operating System - Microsoft Windows XP Home Edition preinstalled
Processor - Intel® Pentium® III-M processor 1.0GHz, with Intel® SpeedStep™
Memory / RAM Installed - 512MB 133MHz SyncDRAM for multitasking power
Memory / Cache Installed- 512 KB
Display - 15" SXGA+ TFT display
Storage CD / DVD - 1 x CD-RW / DVD-ROM
Storage Hard Drive - 1 x 30.0GB Ultra DMA hard drive
Storage Floppy Drive - 1 x 1.44 MB 3.5" HD external
Battery (Max) - 1 (2) x Lithium Ion proprietary
Input Device - Keyboard, touchpad

Made in Korea (South)

Telecom - Fax / modem - integrated 56 Kbps
Networking - Network adapter - Ethernet, Fast Ethernet integrated
Audio Output - Sound card - 64-Bit stereo
Video Output - Graphics card - Intel 815EM
Weight - 3.5 lbs
Warranty - 1 year warranty

Operating System-Microsoft Windows XP Home Edition Preinstalled
 Processor-Intel Pentium III-M processor 1.0GHz, with Intel Speedstep
 Memory/RAM Installed-512MB 133Hz SyncDRAM
 Display-15" SXGA+TFT display
 Storage CD/DVD-1 x CD-RW/DVD-ROM
 Storage Hard Drive-1 x 30.0 GB Ultra DMA
 Storage Floppy Drive- 1 x 144 MB 3.5" HD external
 Battery (Max)-1 (2) x Lithium Ion
 Input Device-KeyBoard, Touchpad



Telecom-Fax/modem- integrated 56kbps
 Networking-Network adapter-Ethernet, Fast Ethernet
 Audio Output-Sound Card-64-Bit Stereo
 Video Output-Graphic card-Intel 815EM
 Weight-3.0 lbs
 Price-\$1500
 Warranty-1year warranty



Effective 7.1 Mega Pixels
 40X zoom (5X optical, 8X digital)
 Large 2.5" TFT Color LCD
 MPEG-4, VGA (640 x 480) size
 30 fps movie function
 Advanced Shake Reduction Program
 Movie clip stabilizer & Successive recording
 Special functions
 (Highlights, Composite, Photo Frame)
 11 kinds of various scene modes
 Various Shooting Modes
 (Continuous, AEB, AFB)

Unique wave design for comfortable grip
 World's renowned Schneider Lens
 USB 2.0, PictBridge
 Ultra slim and light (110 grams)
 long battery life for 500 pictures

All-in-one S/W package (Movie maker, Movie converter)
 Price-\$250
 Warranty-3 years

Appendix C: Situational Involvement Manipulation

Manipulation #1

High Involvement

Most major leading brands of “Product Category” tend to differ on a number of performance characteristics. *Consumer Reports* has stated these differences in qualities or functional performances are substantial. The ad you will see contains information about a number of important characteristics of “Product Category” as well as information about other performance characteristics.

In addition, in the very near future, “The Brand,” the maker of “Product Category” is planning to test market this “Product Category” in medium-sized cities including **Austin, TX**.

Low Involvement

Most major leading brands of “Product Category” are very similar. In fact, *Consumer Reports* has stated that various brands of “Product Category” do not differ in their functional performance. The ad you will see is a new brand of “Product Category.” In addition, in the very near future, “The Brand,” the maker of “Product Category” is planning to test market this “Product Category” in medium-sized cities in northeast region of the United States.

Manipulation #2

High Involvement

Most major leading brands of “Product Category” tend to differ on a number of performance characteristics. *Consumer Reports* has stated these differences in qualities or functional performances are substantial. The ad you will see contains information about a number of important characteristics of “Product Category” as well as information about other performance characteristics. In addition, in the very near future, “The Brand,” the maker of “Product Category” is planning to test market this “Product Category” in medium-sized cities including **Austin, TX**.

Finally, assume that you immediately need to buy a “Product Category.”

Low Involvement

Most major leading brands of “Product Category” are very similar. In fact, *Consumer Reports* has stated that various brands of “Product Category” do not differ in their functional performance. The ad you will see is a new brand of “Product Category.” In

addition, in the very near future, “Th Brand,” the maker of “Product Category” is planning to test market this “Product Category” in medium-sized cities in northeast region of the United States.

Finally, assume that you do not need to buy a “Product Category” in the near future.

Appendix D: Study Instruction

General Product Evaluation Study

You are being asked to participate in a research study. This form provides you with information about the study. The person in charge of this research will also describe this study to you and answer all of your questions. Please read the information below and ask any questions you might have before deciding whether or not to take part. Your participation is entirely voluntary. You can refuse to participate without penalty or loss of benefits to which you are otherwise entitled. You can stop your participation at any time. To do so simply tell the researcher you wish to stop participation. The researcher will provide you with a copy of this consent for your records.

The purpose of this study is to examine how people utilize advertising messages in evaluating products.

If you agree to be in this study, we will ask you to do the following things:

- answer questions concerning your interests about a number of products

Total estimated time to participate in study is about 20 minutes.

Risks and Benefits of being in the study

- The risk associated with this study is no greater than everyday life.
- The results of this study will help researchers understand how people make use of product information.
- Advertisers/marketers will benefit from the knowledge of how to better serve consumers in their communication efforts.
- If injuries occur as a result of study activity, you will be treated at the usual level of care with the usual cost for services at the Student Health Center. You can contact principal investigator, TaiWoong Yun at 512-426-0608.

Compensation:

- You will receive course credits for your participation in this study and gain experiential knowledge of social science research.

Confidentiality and Privacy Protections:

- The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate you with it, or with your participation in any study.
- If you wish to stop your participation in this research study for any reason, you should contact: TaiWoong Yun at (512) 426-0608 or Professor Wei-Na Lee at (512) 471-8149.

- Participation in this study is entirely voluntary. You are free to refuse to be in the study, and your refusal will not influence your current or future relationships with The University of Texas at Austin.

The records of this study will be stored securely and kept confidential. Authorized persons from The University of Texas at Austin, members of the Institutional Review Board, and (study sponsors, if any) have the legal right to review your research records and will protect the confidentiality of those records to the extent permitted by law. All publications will exclude any information that will make it possible to identify you as a subject. Throughout the study, the researchers will notify you of new information that may become available and that might affect your decision to remain in the study.

Contacts and Questions:

If you have any questions about the study please ask now. If you have questions later or want additional information, call the researchers conducting the study. Their names, phone numbers, and e-mail addresses are at the top of this page. If you have questions about your rights as a research participant, complaints, concerns, or questions about the research please contact Lisa Leiden, Ph.D., Chair of The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 471-8871 or email: orsc@uts.cc.utexas.edu.

You will be given a copy of this information to keep for your records.

You indicate your agreement to participate in the study by clicking on the “Enter” button below and responding to the survey questions.

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