

The Roles Metacognitive Experience Can Play in the Processing Models: The Effects on Indirect
Comparative Ads Evaluation Considering Individual Differences

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Abstract

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Previous literature available related to ICA (indirect comparative advertising) is limited due to the better effectiveness of DCA (direct comparative advertising), while competing against a specific competitor on specific featured attributes. However, recent studies, which point out the superiority of ICA in positioning a brand against overall competitors in the entire market, urge the theoretical and managerial exploration of it.

This research step to fill the gap on how ICA could function well based on popular persuasion models: Resource-matching theory and Dual-process models theories, considering individuals' differences – Need for Cognition. What's more, metacognitive difficulty, a concept ignored in persuasion models before but now getting increasing attention, was also taken into consideration as a factor to find how it could interact with other factors to have effects on ad evaluations under ICA situation.

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Table of Contents

List of Figures	viii
List of Tables	ix
List of Abbreviations	x
1.0 Introduction	1
2.0 Literature Review	2
2.1 Comparative Advertising	2
2.2 Metacognitive experience	3
2.3 Need for Cognition	6
2.4 Dual-Mediation Models	7
2.5 Cognitive Resource Matching Theory	7
3.0 Hypothesis Development	8
3.1 Hypothesis under CRM	8
3.1.1 RR and Metacognitive experience	9
3.1.2 RA and NFC	9
3.1.3 Metacognitive Experience and RA on persuasion	10
3.2 Hypothesis under DMM	12
3.2.1 Metacognitive Experience and NFC on persuasion	12
3.3 From Persuasion to Attitude evaluation	14
3.3.1 Attitude toward ads/brands and Purchase Intention	14
3.3.2 Certainty	15
3.4 Path Choosing	16
4.0 Study 1	18
4.1 Methodology	18
4.1.1 Experimental Task	18
4.1.2 Stimuli Selection	19
4.1.2.1 Choosing of Products	19

4.1.2.2 Heuristic cues	19
4.1.2.3 Systematic cues	20
4.1.3 Difficulty Assessment	20
4.1.4 Dependent & independent measures	20
4.1.5 Sample Characteristics and testing procedure	22
4.1.6 Analysis Overview	22
4.2 Pre-test and Pilot Study	23
4.3 Mains Study	25
4.3.1 Reliability	25
4.3.2 Mediator effects of RA	25
4.3.3 Interaction between RA and metacognitive experience	25
4.3.4 Interaction between NFC and metacognitive experience	27
5.0 Study 2	28
5.1 Methodology	28
5.1.1 Experimental Task	28
5.1.2 Stimuli Selection	29
5.1.3 Difficulty Assessment	30
5.1.4 Dependent & independent measures	30
5.1.5 Sample Characteristics and testing procedure	32
5.1.6 Analysis Overview	32
5.2 Pre-test and Pilot Study	32
5.3 Mains Study	34
5.3.1 Ads evaluation	34
5.3.2 Certainty and RA	36
5.3.3 Choosing of Processing Path	37
6.0 General Discussion and Implications	40
6.1 Theoretical Implications	40
6.2 Managerial Implications	41
6.3 Limitations	41
6.4 Future Directions	42

7.0 Conclusion	42
Reference List	44
Appendices	52
Appendix A: Figures	52
Appendix B: Tables	62
Appendix C: Main Study Questionnaire	90

List of Figures

Figure 1: CRM model	11
Figure 2: Research Model	14
Figure 3: Heuristic cue (Pretest of Study 1)	53
Figure 4: stimuli of study 1	54
Figure 5: Estimated Marginal Means of Persuasion for study 1	55
Figure 6 : Pilot test for study 2	56
Figure 7: Main Study Stimulus for Study 2	58
Figure 8: Interaction of NFC*Metacognitive experience	59
Figure 9: RA * Metacognitive Experience on Certainty	61
Figure 10: NFC * Metacognitive Experience on Imagery Analysis	62
Figure 11: NFC * Metacognitive Experience on Analytical Analysis	62

List of Tables

Table 1: Pretest of study 1_Score of potential targeted products	63
Table 2 : Pretest of study 1 _Features and its importance scores	63
Table 3: NFC Scale-6	64
Table 4: Reliability for study 1	65
Table 5: Mediator effects of RA	65
Table 6: Two-way ANOVA of study 1	67
Table 7: 2-Way ANOVA for NFC and Metacognitive Experience on persuasion	70
Table 8: Reliability	70
Table 9: Hayes' model test for Study 2	72
Table 10: MNOVA for NFC*Metacognitive Experience on ad evaluation	75
Table 11: UNIANOVA of RA and Metacognitive Experience on Certainty	81
Table 12: ANOVA on imagery processing	83
Table 13: ANOVA on analytical processing	85

List of Abbreviations

<i>Abbreviation</i>	<i>Explanation</i>
<i>DCA</i>	Direct Comparative Advertising
<i>ICA</i>	Indirect Comparative Advertising
<i>DMM</i>	Dual Mediator Model
<i>CRM</i>	Cognitive Resource Matching
<i>RA</i>	Resource Availability
<i>RR</i>	Resource Requirement
<i>NFC</i>	Need for Cognition
<i>IV</i>	Independent Variable
<i>DV</i>	Dependent Variable

1.0 Introduction

Comparative Advertising, categorized into Direct Comparative Advertising (DCA) and Indirect Comparative Advertising (ICA), is widely utilized nowadays by advertisers as an effective way to improve brand equity and increase market share. However, ICA did not obtain enough attention in previous research concerning limited deployment. The lack of attention to ICA, due to its inferiority compared with DCA, implied by the literature in the past century, in positioning the advertised product against the specific competitor used as a point of comparison (Miniard, 2006). However, recent studies showed that ICA functions better than DCA, while positioning a brand against the entire market along featured attributes. Considering its extensive utilization in future market promotion, ICA is worth exploring thoroughly in its theoretical and managerial aspects.

According to Beard (2011), previous comparative advertising studies mainly focus on the process outcome (e.g. cognitive, affective, conative) with situational factors such as market share (small/large), product quality (high/low), claims credibility, creativity, and degree of negativity (Grewal et al., 1997; Rogers & Williams, 1989; Beard, 2013). Most studies explored how the main effect of comparative advertising was varied by one-way interaction with those moderators related to practical or cognitive aspects, while none of them considered the metacognitive factor, or individual differences.

Therefore, this paper, unlike most previous research which detects the main effects of difference between DCA and ICA, and the interaction related to other situational factors, explores whether two of the most popular persuasion models (Dual Mediation Model and Cognitive Resource Matching theory) function well within indirect comparative advertising, and how the metacognitive factor and individual differences (Need for Cognition) interact with each other based on the superiority of ICA against the entire market. As a result, it could not only fill the gap in the literature concerning ICA and metacognitive experience, but it could also help advertisers design effective ICA strategy at the managerial level.

2.0 Literature Review

2.1 Comparative Advertising

During the first half of the twentieth century, comparative advertising started to be recognized and then gradually widely criticized by advertisers. It peaked during the 1970s thanks to the advertising self-regulation encouraged by Federal Trade Commission (FTA) in the USA (Barry, 1993; Beard, 2011). Around 2,000 magazine ads published between 1900s to 1980s were analyzed by Pollay (1985), who reported that “implied” comparative advertising which generally mentioned competitive standing (referred as Indirect Comparative Advertising, now) were quite popular, with an average of 25% across the decades. While the “explicit” comparative advertising which included “clues” to the identity of competitors (referred as Direct Comparative Advertising now) were only 2% on the average (at the greatest frequency of use, 4%, in the 1970s).

Recently, with the increasing research and the support of advertising laws in different countries, comparative advertising is becoming more popular. However, it is worth to notice that the level of acceptance of Indirect and Direct comparative advertising is different. In India, the U.K., and the U.S.A., comparative advertisement (including ICA and DCA) is encouraged “since comparative advertising provides consumers with information about both parties' products through a quick comparison, effectively results in lower prices, encourages competition, and helps prevent monopolies” by laws¹. However, in China, the advertising law initially adopted in 1994, which did not allow any comparative ads, has been modified in September 2015 and “allows comparative advertising in China so long as there are no direct comparisons between advertisements”². Except laws, cultural differences also have an influence on the choosing of comparative ads by advertisers. High context cultures, like India, Asia, or Latin America prefer indirect and ambiguous messages (Miracle, Chang, & Taylor, 1992, Ulijn & Kumar, 1999; Kalro et al., 2010), and thus DCA is more acceptable than ICA in low context cultures such as Germany, the U.K., and the U.S.A.

Although ICA accounts for a notable proportion of advertisements recently, it attracted less attention than DCA in the literature as a large part of comparative ads studies conducted is focused on DCA in the USA before the late 1990s (Williams & Page, 2013; Beard, 2018). As Miniard (2006) summed up: “these studies have repeatedly shown that DC advertising is superior to NC (non-comparative) advertising in positioning the advertised product against the specific competitor used as a point of comparison (e.g., Dröge & Darmon 1987; Gorn & Weinberg 1984; Miniard, Rose, Barone, & Manning 1993; Rose, Miniard, Barone, Manning, & Till 1993).” As a result, advertisers were advised to use DCA instead of ICA. However, Miniard (2006) found that more effectiveness was obtained by ICA claiming superiority over all competitors than DCA in positioning a brand against the entire market along featured attributes.

Considering the practical popularity in high context cultures and the theoretical superiority on competing overall competitors, ICA is worth to be explored further to fill the gap on the research in comparative advertisements.

2.2 Metacognitive experience

Metacognitive experience, described as "ease or difficulty with which some information can be brought to mind, or the fluency with which new information can be processed" (Schwarz, 2004; p. 332), is widely researched in the marketing domain. The reason is that when consumers are viewing the advertisement or searching for what they need, the ease or difficulty of metacognitive experience, combined with product information, is used to determine product evaluation (Schwarz, 2004). And compared to metacognitive knowledge and regulation (the other two components consist of metacognition; Flavell, 1979), the metacognitive experience is the part that could be easily manipulated by researchers or advertising companies outside the experimental context.

Many studies believe that the positive impact of metacognitive ease of processing on the evaluative judgment is due to a perceived connection between ease and familiarity or between difficulty and unfamiliarity (Jacoby, Kelley, & Dywan, 1989;

Lee, 2001; Schwarz, 2004; Winkielman et al., 2003). The most compelling evidence for the connection between ease and liking comes from studies that directly manipulated processing dynamics. In the 1990s, there were several types of two-step models to explain it (as cited in Winkielman & Cacioppo, 2001):

“Nonspecific activation model: processing manipulations do not elicit any affective reactions but merely produce the greater accessibility of the activated representation” (Mandler, Nakamura, & Van Zandt, 1987, p. 646); Fluency-attribution model: processing manipulations lead to an affectively neutral experience of fluency (Bornstein & D'Agostino, 1994; Jacoby et al., 1989; Seamon, Brody, & Kauff, 1983); Familiarity-attribution model: processing manipulations elicit a vague feeling of familiarity (Bonanno & Stillings, 1986; Klinger & Greenwald, 1994; Smith, 1998).”

Winkielman and Cacioppo (2001) summarize these models as follow:

“First, they assume that changes in experience are affectively neutral and have no genuine affective consequences. Second, they assume that the process of explaining the change in the cognitive experience is equally likely to lead to more positive or more negative evaluations of the stimulus, depending on the context.”

However, Winkielman and Cacioppo (2001) support a hedonic fluency model in that processing facilitation elicits a genuine affective reaction and that the affective reaction is hedonically positive. Different from the former models, this model predicts that processing facilitation should be accompanied by an increase in positive evaluations but should not be accompanied by an increase in negative evaluations, even if the rating context is negative. They design experiments to test the positive attitude reaction produced by processing facilitation with incipient facial activity monitored by electromyography (EMG). Results of these studies revealed that easy-to-process stimuli were associated with higher activity over the zygomaticus region, which is the brain area associated with pleasure, and thus increase corresponding evaluation of liking, popularity, fame, value, optimism, familiarity and unwillingness to dispose of a product (Labroo & Pocheptsova, 2016).

The ease of metacognitive experience increasing product evaluation has been researched and shown by many different studies through different models. However, in the recent ten years, some studies (listed as below) indicate that complexity, interestingness, and not becoming bored can be the advantages of the metacognitive difficulty, outcompeting the ease under certain conditions. Three broad sets of findings have now emerged showing that the effects of metacognitive difficulty vary from negative to positive:

First, the effect of metacognitive experience is sensitive to the consumption domain (Labroo & Dhar, 2010). The common association between ease of experience and feeling of familiarity is based on the naive theory, which refers that the feeling of ease people experience while processing information leads them to infer that their comprehension is high, whereas the feeling of difficulty leads them to infer that their comprehension is low (Miele & Molden, 2010), and people naturally prefer those that they comprehend easily rather than those they comprehend with difficulty. However, the positive relationship between familiarity and liking may be reversed in consumption domains in which people hold the opposite lay beliefs regarding the link between familiarity and liking. Labroo and Dhar (2010) assumed that in consumption domains in which consumers hold the belief that uniqueness and lower familiarity are signals of higher value, metacognitive difficulty would be interpreted as a positive cue and would result in greater liking.

Second, the negative effects of metacognitive difficulty are reversed to positive for consumers who are goal-pursuing (Labroo & Kim, 2009). A lot of existing research shows that if the characteristics of a stimulus are easy to process, feelings of ease arise during processing of that stimulus. These feelings are beneficial and increase liking of the stimulus (Berlyne, 1966; Bornstein, 1989; Schwarz, 2004; Zajonc, 1968). However, there is also a common sense that when people are pursuing some valuable things, efforts are usually required. People would like to invest their efforts on the target objects, which is instrumental to realize their goals. Thus efforts are always associated with value when pursuing goals. Because efforts are also required when processing metacognitive difficulty, people would regard metacognitive difficulty which need efforts

as a sign of valuable instrument to achieve goals, and subsequently increase the liking of those difficult target objects (Labroo & Kim, 2009).

Third, the difficulty in metacognitive experience can make consumers feel challenged and stimulate them to extend their existing knowledge of brands, especially for mastering new information (Lee & Shavitt, 2009). Different from those researchers who examined attitude formation toward new or unfamiliar targets of metacognitive inferences, Lee and Shavitt (2009) argue that effects of metacognitive experiences may be distinct from well-established brands. They find that metacognitive difficulty indeed can lead to a reduction in perceived understanding, and impulse consumers to seek available cue in judging or formulating purchase intention for an established brand, which can be manipulated by a brand manager; but it happens only when a person consider the difficult experience as relevant to the state of his or her brand representation, and this effect is moderated by the extent to which consumers' motivation to maintain cognitive closure by seizing on available information is either chronically high or intensified by time pressure. This finding was distinct from the existing model of brand association network, which did not view the role of consumers' motivation as critical to learn new information, which is a kind of promotion in realizing consumer learning in the brand representation literature. As for managerial implications, it suggests that brand managers' goals should include the management of consumer's metacognitive understanding of brands, not merely the management of the brand concept.

2.3 Need for Cognition

Need for cognition refers to an individual's tendency to engage in and enjoy activities that require thinking (e.g., brainstorming, puzzles). Specifically, It is a personality variable reflecting the extent to which individuals are inclined towards effortful cognitive activities. Some individuals have relatively little motivation for cognitively complex tasks. These individuals are described as being low in need for cognition. Other individuals consistently engage in and enjoy cognitively challenging

activities and are referred to as being high in need for cognition. An individual may fall at any point in the distribution, however (Cacioppo et al., 1996).

2.4 Dual-Mediation Models

Dual-process models are a series of similar models to explain the mechanism where persuasion occurs. The Elaboration Likelihood Model (ELM) is one of the most popular models among DMM (Petty & Cacioppo, 1981; Petty, Cacioppo, & Schumann, 1983). The foundation of DMM theories was that there are two distinct routes while processing the information: a systematic or central route, as well as a heuristic or peripheral route. When the elaboration likelihood is high, viewers engaged in more effortful processing of information and generate more cognitive thoughts; on the contrary, viewers put less effort to analyze the ad's content when there are fewer resources available, and they turn to making a judgment based on heuristics, affect transfer, or less effortful message processing (Coulter et al., 2004).

In DMM models, several factors or combinations are proved to lead to the peripheral route. The nature of people who tend to avoid effortful thinking (Cacioppo, Petty, & Morris, 1983), the appeal in the information which is personally inconsequential (Petty & Cacioppo, 1979), engagement in distracting tasks while processing the information (Petty, Wells, & Brock, 1976), and limited prior knowledge on the issue (Cacioppo & Petty, 1980; Wood, 1982), could largely reduce the elaboration likelihood of issue-related thinking, and subjects would turn to depend on existing schemata and superficial analyses to make a decision which seems “reasonable”, but actually it either have no intrinsic link to the attitude stimulus, or a simple inference related to the cues in persuasion context (e.g., the more arguments for a recommendation, the better it must be) (Petty & Cacioppo. 1984).

On the contrary, according to Petty and Cacioppo (1984), high attendance to the appeal, willingness to access relevant associations, images and experience from memory, and to analyse the arguments with the data extracted from memory to derive an overall evaluation, will highly effect people's motivation and ability to engage in

issue-relevant thinking, or go through the central route where elaboration likelihood is viewed as high.

However, this model has its limitations. It exclusively focuses on whether the supplication of cognitive resources that could be devoted to thoughtful message analysis is adequate, but it ignores that the evaluation of adequacy also depends on the resource demands imposed by the content of the ads (Meyers-Levy & Malaviya, 1999), such as complexity. Thus the Resource-Matching theory which considers both the level of requirement for message processing and the level of the supplication of cognitive resources invested into message understanding becomes an indispensable supplement part to understanding persuasion.

2.5 Cognitive Resource Matching Theory

Anand and Sternthal (1989) first came out with a theory that persuasion could be affected by the matching of the supply of cognitive resources that a person devotes to message processing and the demands for resources that a message effectively requires if it is to be processed. The amount of resources that are available for allocation to message processing is called "Resource Allocation" (RA; also named required cognitive availability), and the resource that message recipients perceived they required for the processing task is named "Resource Requirement" (RR; Keller & Block, 1997). According to Keith and Girish (2004), when $RA < RR$, persuasion is likely to be diminished due to incomplete, superficial, or inefficient message processing, and fewer positive brand-related cognitions are generated. When $RA > RR$, message recipients may generate many advocacy-consonant cognitions, but at the same time, they might also invest their excess resources which exceed the requirement to question the message assertions or produce advocacy-irrelevant negative thoughts (Meyers-Levy & Malaviya, 1999). Besides, boredom, tedium, or "wear-out" effects might also appear. In sum, the smaller the gap between the level of resource allocation and the level of resource required for comprehension of the message, the better the effect of the intended message to be processed, because the message will be understood more properly without producing unrelated negative thoughts.

However, it is worth to notice that only under the condition that evokes resource-intensive, systematic message processing, the resource matching theory seems to be applicable (Meyers-Levy & Peracchio, 1995, 1999). That is because when people go through the peripheral processing, they will rely on a subset of the message cues (especially heuristic cues) which required less cognitive effort to making judgments, instead of doing excessive message processing. This superficial, inadequate processing makes the resource requirement invalid. In sum, under heuristic processing conditions, whether the level of RR is high or low doesn't matter, for people will ignore the level of RR and always choose the way which needs the least cognitive efforts to judge.

3.0 Hypothesis Development

3.1 Hypothesis under CRM

The hypotheses below are based on condition that evokes resource-intensive, systematic message processing, where resource matching theory could be applicable.

3.1.1 RR and Metacognitive experience

Considering the metacognitive experience which was always manipulated by adjusting the number of cognitive efforts that the subjects are perceived to expend on understanding the content of the stimulus (Labroo & Dhar, 2010; Labroo & Kim, 2009), I could notice that the difficulty level of metacognitive experience is corresponding to the level of resource requirement. (Even the cognitive efforts needed to input for understanding the content is the same, the metacognitive difficulty could make people feel difficulty to understand mentally and improve RR).

H1: Metacognitive difficulty implies a high level of RR because more efforts are expected to be devoted to understand the message. On the contrary, metacognitive ease is less resource demanding (lower level of RR).

3.1.2 RA and NFC

As for the cognitive resource allocation process, its operation through which the motivation affects choice, action, and ultimately performance could be separated into two types: distal motivational process and proximal motivational process (Kanfer & Ackerman, 1989). Kanfer and Ackerman (1989) pointed out that "Distal processes are initially antecedent to task engagement. Specifically, its decision sets the stage for resource availability during task engagement". Through this process, we could decide on daily choices, such as what to wear or which work tasks to begin first. But when we finish making the decision, then we will enter the proximal motivational process which requires sustained attentional effort to solve the difficulties in the tasks (Bandura, 1986). Thus, the attentional effort was usually measured to represent the level of resource allocation (Coulter et al., 2004; Laczniak & Muehling, 1993). These resource allocation processes consist of self-regulatory activities: self-monitoring, self-evaluation, and self-reaction. Among these self-regulatory activities, individuals will allocate their attention based on the expected consequence of their behavior (for example, whether it is important or helpful to their goals), the comparison between the progress of their goal-performance with certain standard, or even individual differences (for example, the person with an action orientation who is task-focused and the person with a state orientation who is vulnerable to emotion will naturally take different self-regulation activities) (Kanfer & Ackerman, 1989). Meyers-Levy and Malaviya (1999) explain more specifically that "the allocation of resources is determined by characteristics of the message recipient (e.g., his or her message involvement, expertise, or need for cognition), the advertising message (e.g., its complexity, inclusion of pictures, or use of music), and the context in which the message is received (e.g. the programming, editorial, and advertising context)".

According to the ELM (Cacioppo & Petty, 1982), the level of Need for Cognition (NFC) belongs to one of the predominant factors in enhancing motivation, and NFC is positively related to motivation of processing (Kirk, 2009) (which means individuals with higher NFC, who are assumed to process information more extensively, would be

expected to generate more thoughts). And the level of Resource Availability (RA) can be manipulated by varying processing motivation (Keith & Girish, 2004).

H2: High Need for Cognition implies a high level of RA through enhancing the motivation of processing (Low Need for Cognition implies a low level of RA).

3.1.3 Metacognitive Experience and RA on persuasion

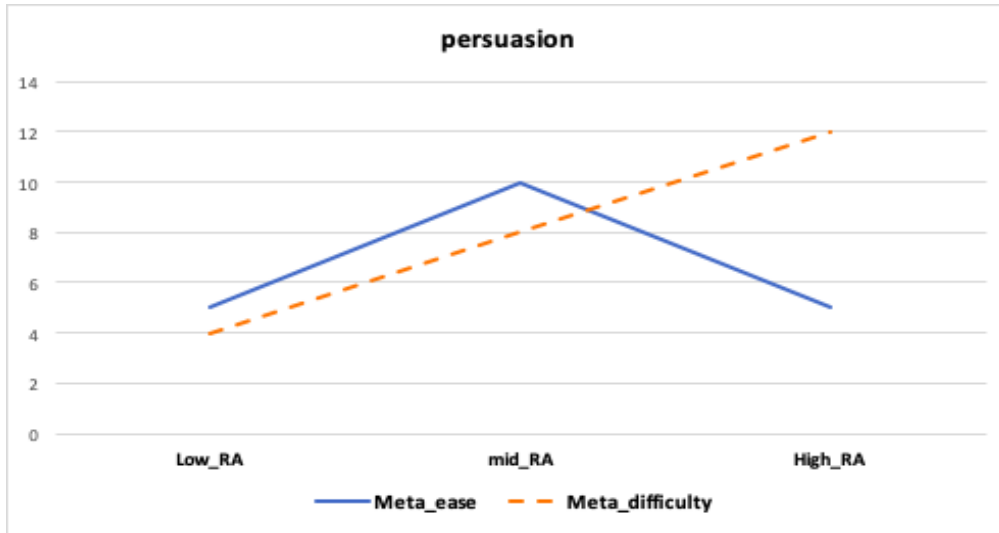
If H1 is supported, which means the metacognitive experience indeed could be used to manipulate resource requirements, according to CRM, we could assume that there is an interaction between metacognitive experience and RA on persuasion: the smaller the gap between the level of resource allocation and the level of resource required for comprehension of the message, the better the effectiveness of the intended message to be processed because the message will be understood more properly without producing unrelated negative thoughts.

Considering the assumption of Keller and Block(1997) who manipulated resource requirements with vividness to explore the CRM, here I assume that increasing resource allocation leads to a non-monotonic response for the meta-cognitive ease information and a linearly increasing trend for the meta-cognitive difficulty information concerning persuasion (As in Figure 1 below). If these outcomes are obtained, metacognitive ease is likely at a moderate level of resource allocation but not at a low or high level.

H3 (a): When metacognitive experience is difficult, the persuasion will keep improving with the increased level of RA because the RA level is getting close to the RR level.

H3 (b): When metacognitive experience is easy, the persuasion will experience an improvement first, then reach a peak at the mid-level of RA, and stop improving or even decrease with the increase of RA.

Figure 1: CRM model



	Low RA	Mid RA	High RA
Metacognitive Ease	RA < RR	RA = RR	RA > RR
Metacognitive Difficulty	RA < RR	RA < RR	RA = RR

3.2 Hypothesis under DMM

The hypotheses below are based on general conditions that two routes (systematic or central) of processing the information could be followed, an environment where the Dual Mediation Model could function well.

3.2.1 Metacognitive Experience and NFC on persuasion

Generally speaking, people in high NFC are more curious and enjoy thinking, and they have a high need to process the information. For people in low NFC, they are cognitive misers who would not engage in effortful thinking and always 'avoid cognitive

works that derive their attitudes based on the merits of arguments presented' (Cacioppo & Petty, 1982; Haugtvedt et al., 1992). As a result, high NFC more thoroughly analyzes the information of the ad than low NFC individuals (Ruiz & Sicilia, 2004; Mantel & Kardes, 1999; Peltier & Schibrowsky, 1994). To be specific, high NFC individuals' attitudes on the products are more based on the evaluation of product attributes, while low NFC individuals are more based on simple peripheral cues inherent in the ads (Haugtvedt et al., 1992).

According to previous research (Alter et al., 2007), metacognitive difficulty activates analytic reasoning. Here I assume that for people in low NFC, whether the cognitive experience is easy or difficult does not have a significant influence on their evaluation, because they always try to avoid effortful thinking and thus they are not sensitive to cognitive irritation.

As for people in high NFC, metacognitive difficulty acts as stimulation that evokes critical thinking, prompts them to invest more effort to analyze the information, and thus leads them to analytical analysis on specific claims in the ads to make assertions. On the one hand, analytical analysis which leads to a central route could motivate people to accept new information more effectively. Richard and John (1986) mentioned that a "negativity bias" happened in comparative ads. They implied that people who view comparative ads containing criticisms to competitors are prone to go through central route to persuasion, leading to integration of new message and long-term attitude change.

However, on the other hand, counter-arguments and negative thoughts are also activated and rejection of the message could also become a result. Jain and Posavac (2004) find that if the advertiser badmouths all other competitors, claims that he is better than all the others, more counter-arguments will be encouraged because consumers may find it difficult to believe it. As in the comparative ads, the comparison brand is always the leading bargain brand in the market; thus the strong claims on the competitive advantages of the advertised brand are easy to produce discrepancy with consumers' beliefs and counterarguments. As a result, they are prone to question the

claim of ads, produce suspicion or advocacy-irrelevant negative thoughts. All of those excessive thinking will lead to the lower effectiveness of persuasion for people in high NFC.

H4 (a): For people with high NFC, persuasion will be significantly lower in the metacognitive ease condition than in the difficulty condition.

H4 (b): For people with high NFC, persuasion will be significantly higher in the metacognitive ease condition than in the difficulty condition

H5: While for people with low NFC, the difference of persuasion between the metacognitive ease condition and the difficulty condition is not significant.

As Figure 2 shows below, here comes the model from H1 to H5:

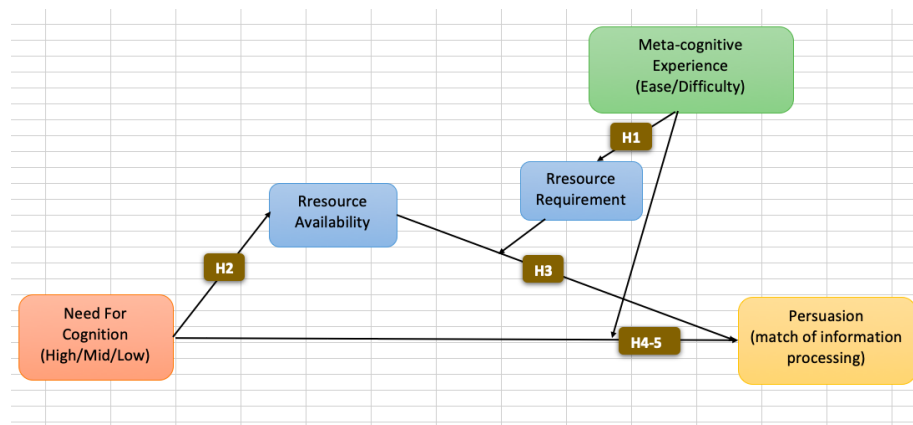


Figure 2: Research Model

3.3 From Persuasion to Attitude evaluation

3.3.1 Attitude toward ads/brands and Purchase Intention

If the previous hypotheses on persuasion are supported, will the interactions between NFC and Metacognitive Experience, and between RA and Metacognitive Experience on persuasion, also transfer to ad effectiveness measure (such as attitude,

certainty, and purchase intention)? According to the naive theory, the feeling of ease people experience while processing information leads them to infer that their comprehension is high, whereas the feeling of difficulty leads them to infer that their comprehension is low (Miele & Molden, 2010), and people naturally prefer those that they comprehend easily rather than those comprehend with difficulty. Thus generally people have more positive attitudes when experiencing the metacognitive ease condition than the difficult condition. However, as individuals in high NFC would be expected to be critical thinkers and to not necessarily accept these arguments on face value (Kirk 2008), which means they are less affected by familiarity-liking link (prefer systematic path more than hedonic path). Thus I assume that people with high NFC will generate more extent of positive attitude from metacognitive difficulty to ease, compared to those with low NFC. However, if counter arguments were too much in the influent information processing and lead to a lower persuasion, the attitude of people in high NFC could also become negative towards metacognitive difficulty.

H6 (a): For people with high NFC, there will be a **more positive** attitude of ads/brands and purchase intention toward metacognitive difficulty than those with low NFC.

H6 (b): For people with high NFC, there will be a **more negative** attitude of ads/brands and purchase intention toward metacognitive difficulty than those with low NFC

H6(c): For people with high NFC, the difference of mean attitude of ads/brands and purchase intention will be larger between ease and difficult condition, compared to people with low NFC.

3.3.2 Certainty

Tormala and Rucker(2007) summed that 'Attitude certainty refers to the subjective sense of conviction one has about one's attitude or the extent to which one is confident or sure of one's attitude (Abelson, 1988; Festinger, 1954; Gross, Holtz, & Miller, 1995). Thus, attitude certainty is a metacognitive aspect of attitudes in that it reflects a secondary cognition (e.g., Ron is certain that he dislikes sharks) attached to a

primary cognition (i.e., Ron's negative attitude toward sharks) (Petty, Briñol, Tormala, & Wegener, 2007).'

According to previous research, subjective experience is one of the factors that affect attitude certainty (Haddock et al., 1999): people were more certain of their attitudes after reviewing an easy (small) rather than a difficult (large) number of arguments. I can deduct that metacognitive difficulty could lessen the intensity of certainty.

Besides, according to Tormala and Petty (2002), several variables can moderate the impact of people's perceived response to persuasion messages on attitude certainty, and perceived processing effort is one of them. When people under high cognitive load, because they were distracted when processing the information, feel less certain about their attitudes. While for low cognitive load people, they have a higher certainty level because they believed they had thought more carefully about the message. Here I could deduce that resource allocation, the attention, and effort that people allocated to processing the message, could have positive effects on the certainty.

Thus, I assume that the RA could work as a moderator that could have an interaction with metacognitive experience on attitude certainty. When the content of ads is easy to process, more attention is put into the ads, they will be sure that they understand the ads and thus become more confident. However, because the difficulty makes people feel it is hard to understand the content of ads, they will always feel not that confident towards their judgment and decision despite putting more attention to the ads (even uncertainty could be strengthened).

H7: Under the metacognitive ease condition, the certainty will be strengthened with the increase of RA level. However, under metacognitive difficulty, the certainty change to a significantly smaller extent for people with different RA levels.

3.4 Path Selection

There is a common feature among a large body of thinking theories in the psychology fields: "dual-process models" of thinking. To be specific, thinking involves two systems through which individuals were oriented in decision-making (Norman et al., 2017). The faster system Type 1, is automatic, unconscious, and seemingly effortless, whereas the slower system, Type 2, is controlled, conscious, and effortful. As Evans and Stanovich (2013) described it, Type 1 is "intuitive, heuristic," and Type 2 is "reflective, analytic."

In the marketing research area, correspondingly, the ELM (Elaboration Likelihood Model) among DMM (Dual-process models) is based on a similar theory: two distinct routes while processing the information. Systematic or central route with high effort input and more cognitive thoughts, as well as a heuristic or peripheral route which is less effortful and more affective.

Notably, Imagery and analyzing are complementary information processing modes (Oliver, Robertson, & Mitchell, 1993), rather than mutually exclusive processes (McInnis & Price, 1987). These correspond to the encoding of pictures as imagine codes and words as verbal codes in memory (Unnava & Burnkrant, 1991). It means that processing the information is not exclusively imagery or analyzing. To be specific, it could contain both cognitive thoughts and affect but in different proportions. Similarly, Sojka and Giese (1997) had classified the individuals according to their processing style to four types: Feeling processors (high affect and low cognition), passive processors (low affect and low cognition), combination processors (high affect and high cognition), and thinking processors (low affect and high cognition).

Imagery is based on sensorial, non-verbal representations, while analyzing relies more on semantic processing (Childers, Heckler, & Houston, 1986) and holistic (Thompson & Hamilton, 2006). Analytical processing is semantic and uses reasoned processing. This style of reasoning was regarded as more controlled (Stanovich & West, 2000), deliberate and slow (Tversky & Kahneman, 1989).

In comparative advertising, it is often found that systematic cues and heuristic (peripheral) cues emerge simultaneously. To help explain detailed quality of products (systematic cues) which might be complicated for consumers to understand in a limited exposure, marketers sometimes rely on communicating with consumers' emotions through heuristic or peripheral cues (which generally involve contextual factors irrelevant to an argument's quality). Interestingly, according to previous research, attribute information is better recalled when it was presented both as a picture and in words than when it was presented only as words with a different attribute conveyed in the picture (Houston, Childers, & Heckler, 1987; Unnava & Burnkrant, 1991).

According to previous research (Alter et al., 2007), metacognitive difficulty activates analytic reasoning, which means under the situation of metacognitive difficulty, people are more heavily influenced by the systematic cue than in the ease condition. Besides, generally speaking, people with high NFC are more curious and enjoy thinking, they are naturally expected to rely on systematic cues than on hedonic cues when making decisions. With additional stimulus evoking analytical thinking, people with high NFC should have an outstanding preference in analytical processing path compared with low NFC people who are 'cognitive miser'. On the other hand, for people with low NFC, metacognitive ease provides them with a fluent environment to make decisions instinctively and emotionally with less effort, while metacognitive difficulty functions as an obstacle which makes them feel curious and hinder them from imagery processing path more or less. Thus, here I want to detect whether different metacognitive experiences could have further influence on the preference for the information processing path in the comparative ads among people at all NFC levels.

H8 (a): For people with a high NFC level, their preference on choosing analytical processing path is higher under metacognitive difficult condition than those in metacognitive ease condition because of higher reliance on systematic cues than heuristic ones.

H8 (b): For people with a low NFC level, there is no difference on the preference on analytical processing path.

H9 (a): For people with a low NFC level, their preference on choosing imagery processing path is higher under metacognitive ease condition than those in metacognitive difficulty condition because of higher reliance on heuristic cues than systematic ones.

H9 (b): For people with a high NFC level, there is no difference on the preference on imagery processing path.

4.0 Study 1

4.1 Methodology

4.1.1 Experimental Task

The goal of experiment 1 is to test H1-H6; According to the literature review mentioned above, the CRM effects only function well under systematic path processing (Meyers-Levy & Peracchio, 1995). To create a stimulus that could effectively impose subjects to put proper cognitive effort to process the information, I decided to create a comparative ad containing both a heuristic cue (picture) and a systematic cue (Text). The systematic cue should be related to important features of the products which could appeal to the subjects to engage in effortful thinking. As for the heuristic cue, it should be neutral and pale so that the viewers will not be too impressed and distracted from the text reading, avoiding making decisions based on their intuition and emotion.

4.1.2 Stimuli Selection

4.1.2.1 Choosing of Products

Considering the sensitivity of metacognitive difficulty in the product's domain (Pocheptsova, Labroo, & Dhar, 2010), a pretest was conducted to choose the products. Among 6 common products (Liquid laundry detergent; Toothpaste; Shampoo; Home

audio; Headphone; Refrigerator; Sedan), the product which receives an average score between "unique, exclusive or uncommon" and "daily, familiar or common" will be my stimulus. It judged by product involvement (using a 7-point, 6-item semantic differential scale: relevant to me/not relevant to me, important/not important, of no concern to me/of concern to me, matters to me/doesn't matter to me, involving/not involving, means a lot to me/means nothing to me) and prior product knowledge (using a 7-point, 3-item semantic differential scale: very knowledgeable/not knowledgeable at all, familiar/not familiar, and experienced in using it/ not experienced in using it) (Kirk 2008) to reduce the effect of potential covariates. The score on the two scales was averaged for selection.

4.1.2.2 Heuristic cues

According to Kahneman and Frederick(2002), attribute substitution, one type of the heuristic model, has "The Beautiful-Is-Familiar" effect (e.g., attractive faces are more likely to be mistakenly labeled as the familiar and more positive effect will be recalled, Monin & Oppenheimer, 2005). In comparative advertisements, a common way to create a strong heuristic condition is to improve the competence of target products' appearance while diminishing the attractiveness of competitive products. Different from using the strong or weak physical appearance of competence to constitute heuristic cues as in many other experiments, here I decided to create a neutral, unimpressive comparison between the appearance of the targeted product and the anonymous competitive product to represent the weak heuristic cue (which is more practical among comparative ads). The attractiveness of targeted products will be rated, and the ads with insignificant contrast between the target product and competitive product will be defined as a weak heuristic cue.

4.1.2.3 Systematic cues

As Alter et al. did in 2007, participants reported the three most important and the three least important features of targeted products to construct the systematic cue. In my pretest, the strength of the systematic cue will be manipulated by using the three

most commonly mentioned important features. After choosing targeted products, I will give several common features of the products, and ask subjects to give the sequence of these features from most important to least important to filter effective systematic cues.

4.1.3 Difficulty Assessment

Whether the difference between Metacognitive difficulty and ease in the ads are significant enough to be served as a cue should be checked. Only when the manipulation of metacognitive difficulty indeed incurs different levels of resource requirement (RR), assumptions in the CRM can be tested. The trick to manipulating the metacognitive difficulty in this experiment was to use the faint, obscure and distorted font of masthead and introduction of products which is harder to process than clear one on the ads (Labroo & Dhar, 2010; Labroo & Kim, 2009; Lee & Shavitt, 2009; Alter et al., 2007). However, this time, only the masthead of the ads will be handled to create a feeling of difficulty, while the text of systematic and heuristic cue will remain the same in every condition to avoid covariate in processing the content of the ads. H1 (Metacognitive difficulty implies a high level of RR because more efforts are expected to devote to understanding the message. On the contrary, Meta-cognitive ease is less resource demanding (lower level of RR)) will be tested in this manipulation check and the main test could be continued based on it.

4.1.4 Dependent & independent measures

Persuasion (DV)

Persuasion will be measured by 4 items with 7-point scales (from not at all=1 to extreme amount=7) (Block & Keller, 1997): 1. How worthwhile you think driving the recommended model of the sedan would be to you personally as a way to do transportation? 2. How convincing do you think the ad is? 3. How effective do you think the content of the ad would be in persuading someone to purchase the recommended model of the sedan rather than other brands of sedans? 4. How interested would you be in receiving more information about the recommended model of the sedan?

RA (IV)

RA will be measured by 5-item message attention as in Laczniak and Muehling (1993): 1. How much attention did you pay to the ad? 2. How much did you notice the information in the ad? 3. How much did you concentrate on the information in the ad? 4. How involved were you with the information in the ad? 5. How much thought did you put into evaluating the information in the ad?

NFC (IV)

We used the 6-items form (Gabriel & Paul, 2018) to measure the NFC level of subjects instead of the 18-items full form for NFC (to shorten the length of the questionnaire) (as shown in Table 3).

Different from other studies manipulating resource allocation before viewing the ads, such as assigning tasks with different levels of vulnerability to subjects for distinguishing different levels of RA groups (Keller & Block, 1997), or varying the initial experimental instructions (from imaging themselves 'in the comfort of their living room' to 'in the market to choose among brands') (Keith & Girish, 2004), it is worth to notice that my experiments measure the RA after subjects are viewing the ads. On the one hand, because in my model, I will detect the mediator effect of RA between NFC and persuasion, and manipulation in advance could have covariate effects on how the mediator works. On the other hand, subjects can only decide how much cognitive effort to be allocated to process information after they recognize the task (Kanfer & Ackerman, 1989). The differences of the masthead can only have effects on RR but not on RA because the content of the information is the same. Besides, until now, there is no previous research that shows that the change of font would influence RA.

4.1.5 Sample characteristics and testing procedure

For the pretest and pilot study, 20, 60 and 40 subjects were hired from Amazon Mechanical Turk online separately to find suitable stimuli including product, heuristic and systematic cues, and difficulty assessment.

Then, through Amazon Mechanical Turk online, 200 people participated and they are assigned to two conditions separately (100 in each condition). In each condition, the subjects will first view an ad, and then related dependent and independent variables will be measured.

In the first condition, the masthead of the ads will be written in an easy-to-read typeset to create a metacognitive ease environment. In the second condition, the masthead of the ads will be written in a difficult-to-read typeset to create a metacognitive difficult environment. As for the content of the ad, both conditions include the same positive systematic cue and neutral heuristic cue.

First, Familiarity and Involvement of the products were measured with the measurements used in the pretest of choosing products which could be used to reduce the covariance in data analysis. Then, participants will see the appearance of the advertised product with similar attractiveness compared to that of an anonymous one, paired with important features of the advertised product, encouraging subjects to engage in effortful thinking. After reading the ads, persuasion, RA and NFC are measured sequentially.

4.1.6 Analysis Overview

First, the Reliability of each measurement is tested to see if it is good enough. And then, the mediator effects of RA between NFC and persuasion is checked. After that, the interaction between RA and metacognitive experience is checked to see whether the match of RR and RA level could have an influence on persuasion. The last step is to check if NFC could directly have an interaction with Metacognitive difficulty without going through RA under the environment encouraging systematic path processing.

4.2 Pre-test and Pilot Study

Choosing of products

20 subjects view 6 common products (Liquid laundry detergent; Toothpaste; Shampoo; Home audio; Headphone; Refrigerator; Sedan) and give their review sequentially. As a result, shown in Table 1, Sedan ($M=3.58$, $SD=1.47$) and Laundry Detergent ($M=2.9$, $SD=0.83$) which have average performance on involvement and prior product knowledge were chosen to be used as two stimuli separately in study 1 and study 2.

Heuristic Cue

After deciding to use sedan as a stimulus product, 60 subjects participated in a pretest to find heuristic cues. They were randomly exposed to one of the three pictures (Figure 3), and rate "how much you like the car on the left side of the ad/ how much do you like the car on the right side of the ad" on a 7-Likert scale. (3 samples were invalid and removed, only 57 responses were used in the analysis).

As expected, in Figure 3-1, two sedans which occupied equal width and had the same backgrounds in the ad received similar preference ($M_{white}=5.11$, $SD=1.32$; $M_{grey}=5.16$, $SD=1.54$), $t(34) = -0.116$, $sig(2-tail) = 0.91 > 0.1$. While in Figure 3-2, the white sedan which was highlighted by occupying more space and having a bright background received significantly more preference ($M=5.41$, $SD=1.13$) than did the grey one ($M=4.68$, $SD=1.62$), $t(42) = -1.747$, $sig(2-tail) = 0.088 < 0.1$. In Figure 3-3, the place of the white and grey sedan was exchanged to make sure that it was the manipulation of width and backgrounds that had an effect. As a result, the grey sedan which was highlighted this time indeed received more preference ($M=5.94$, $SD=0.827$) than did the white one ($M=4.71$, $SD=1.90$), $t(32) = -2.462$, $sig(2-tail) = 0.019 < 0.05$.

These results showed that the manipulation on the background of products creates the heuristic cue that functioned very well in manipulating the favourability. Thus Figure 1-1 was chosen to be a weak heuristic cue and will be used in the design of ads.

As for Figure 1-2 and 1-3, although it is very popular to create such a comparison among real-life scenarios, they will be abandoned in this experiment because they could significantly improve the subjects' favourability without any analytical thinking.

Systematic Cue

In this pretest, 9 common features of the sedan (Table 2-1) written in different text boxes were provided to 57 subjects in online questionnaires. They were asked to drag the boxes to rank them from "most important (1)" to "least important (9)" and then features got the score which was equal to their rank individually. In Table 2-2, the average score of each feature was compared. As results, the strong systematic cues were: Exterior Design, GD Engine, and Solidity. Thus these three features, which were weighty and professional enough to induce subjects' high involvement, will be used appropriately as systematic cues in the ads.

Difficulty Assessment

After the pretest for products, heuristic and systematic cues, the design of the ads came out: A review of Sedan in a car magazine shown in Figure 4. Figure 4-1 and Figure 4-2, which had the same content but a different font of the masthead, were viewed by 40 participants (20 in each cell). As expected, the disfluent masthead was considered more difficult to read ($M = 2.65$, $SD = 0.81$) than the fluent masthead ($M = 1.85$, $SD = 1.31$), $\text{sig (2-tailed)} = 0.026 < 0.05$. What's more, exposure to the easy to process version resulted in greater cognitive thoughts ($M = 1.55$, $SD = 0.67$) than the difficult one ($M = 1.10$, $SD = 0.85$), $\text{sig (2-tailed)} = 0.074 < 0.1$. That means, the easy version incurring more cognitive thoughts was presumed to require less resource requirement (Keith, 2004), and thus created a meta-cognitive ease experience.

Hypothesis 1 that metacognitive difficulty implies a high level of RR because more efforts are expected to devote to understanding the message was supported here. And thus the main test could be continued based on the successful manipulation.

4.3 Mains Study

4.3.1 Reliability

Reliability for all measurements of variables (All of them have high enough Cronbach's Alpha, as shown in Table 4). The results showed that the reliability of all the measurement of variables is good enough (between .821 and .964).

4.3.2 Mediator effects of RA

At first, I examined whether RA could be a mediator between NFC and persuasion. I analyzed the data with SPSS. In Hayes' process, I found the model 4 for detecting mediators that match my demand. The means of NFC, RA, and Persuasion were entered, and the results are showed in Table 5.

The direct path from NFC to persuasion is marginally significant ($b = -.0435$, $s.e. = .0480$, $p = .0512$); however, the coefficient between NFC and RA ($b = .1990$, $s.e. = .0647$) is significant ($p = .0024$) and the path from RA to persuasion is also significant ($b = .2784$, $s.e. = .0517$, $p = .0000$). The indirect effects of NFC on persuasion through RA exists (BootLLCI = .0171, BootULCI = .1027, under 95% level of confidence).

H2 that High Need for Cognition implies a high level of RA through enhancing the motivation of processing (Low Need for Cognition implies a low level of RA) is supported here. RA acted as a mediator between NFC and Persuasion.

4.3.3 Interaction between RA and metacognitive experience

As for the interaction between RA and metacognitive experience, to detect a more specific tendency about how the matching model affects the persuasion, RA was separated into three levels according to its frequency of scores. For subjects whose mean From 2.20 to 5.40 (account for 32.3% of whole subjects) were set as low RA

group, those from 5.60 to 6.40 (34.5%) were set as middle RA group, and those from 6.60 to 7.00 (33.2%) were set as high RA group.

A two-way ANOVA was conducted that examined the effect of RA level and metacognitive experience level on persuasion. There was a statistically significant interaction between the effects of RA and metacognitive experience on persuasion (Table 6-1), $F(2,192) = 3.938$, $p = .021$. Simple main effects analysis showed that people with different RA levels performed significantly different on persuasion ($p = .000$), but there was no significant difference ($p = .491$) between metacognitive ease and difficulty when RA level is controlled.

However, the specific trend needs further exploration. According to simple t-tests based on the descriptive statistics (Table 6-2), I can find the specific trend of influences on persuasion with the help of the plot of estimated marginal means (Figure 5). According to Table 6-3, when RA is low, the persuasion of metacognitive difficulty is significantly lower than that of metacognitive ease ($p = .0326$). When RA is at the middle level, the effects of difficulty and ease on persuasion are similar ($p = .7134$). When RA reached a high level, the persuasion of difficulty increased largely and significantly exceeded that of ease of persuasion ($p = .0522$).

Under the metacognitive ease condition, the persuasion increases significantly from low RA to middle RA level ($p = .0028$). However, it stopped increasing when RA increased from mid to high level ($p = .8564$). While under the metacognitive difficulty condition, the persuasion keeps increasing from low RA to middle RA ($p = .000$) and from middle RA to high RA ($p = .0176$).

According to Keller and Block (1997) (Figure 1), when $RA = RR$, the persuasion reaches the peak in the graph. If the stimulus of metacognitive ease is designed properly, usually there will be an inverted U under meta-cognitive ease condition. That is because at the starting point and endpoint of RA, RR will be larger or smaller than RA, but RR will equal to RA in the middle of the horizontal axis.

However, in my line chart, the ideal inverted U didn't appear, but it doesn't mean the resource matching model didn't exist and the theory is invalid. When RA is low, ease condition has lower level of RR compared to Difficulty condition, which is closer to low RA level, thus its persuasion is higher; however, with the increase of RA level, the high RR in difficulty condition is closer to high RA level compared to low RR in ease condition; thus the persuasion in difficulty condition is higher. These correspond to the previous matching theory.

The reason why we didn't get an inverted U shape of persuasion in ease condition, is because the RR level of the ease condition is not low enough that the condition of $RA > RR$ didn't appear. As I mentioned before, level 2 and level 3 of the persuasion are similar in ease condition, it means the RA reaches to the equal level of RR earlier than the RA did in difficulty condition.

In sum, the H3 (a) that when metacognitive experience is difficult, the persuasion will keep improving with the increased level of RA because the RA level is getting close to the RR level, and H3 (b) that when metacognitive experience is ease, the persuasion will experience an improvement first, then reach a peak at the mid-level of RA, and stop improving or even decrease with the increase of RA, were supported here. But their existence had a prerequisite that the subjects must be under systematic message processing.

4.3.4 Interaction between NFC and metacognitive experience

The groups of NFC were split in the same way as in RA. Subjects' scores from 1.00 to 3.00 (33%) were set as low NFC group, those from 3.17 to 3.83 (34%) were set as middle NFC group, and those from 4.00 to 5.00 (33%) were set as high NFC group. Only low and high levels of NFC were kept to simplify the explanation of results.

The interaction between NFC (low/high) and Metacognitive experience (ease/difficulty) is also analyzed with two-way ANOVA (Table 7). There was no statistically significant interaction between the effects of NFC and metacognitive

experience on persuasion, $F(1,126) = 2.094$, $p = .150$. Besides, the main effects of NFC ($p = .434$) and metacognitive experience ($p = .766$) were also not significant.

H4 and H5 couldn't be supported here because no interaction was found. But it is in accordance with my expectation considering that the stimulus in this experiment was designed to evoke systematic and resource-intensive processing, we can not deduce that the effect in H4 and H5 will not function in resource-moderate processing with a general stimulus which is possible to arouse systematic or heuristic processing path according to individual differences.

Thus, the study 2 will need to be deducted to solve the problem: the strength of systematic and heuristic cues in the ad should be designed roughly to the same level; thus people with different NFC levels could make their judgment on devoting how many efforts on cues and have possibilities in engaging different information processing paths. The H4 and H5 will be tested under this condition. Considering that CRM would not function well under the design of stimulus, I assume that RA might not work as a mediator and there will be no interaction of RR and RA levels on persuasion. At the same time, H6 will also be checked by keeping the strength of systematic and heuristic cues in the same level which help capture the effects of metacognitive experience on the choice of the information processing path for people in different NFC, avoiding the appearance of any other covariate related to the inconsistent of the strength and content of cues. At last, ad evaluation will also be measured in experiment 2 to see whether H7, H8 and H9 are supported or not.

5.0 Study 2

5.1 Methodology

5.1.1 Experimental Task

Study 2 was conducted to check the hypothesis related to ICA under DMM. Different from study 1 in which the stimuli were designed to encourage systematic and

resource-intensive processing, study 2 created an environment that evoke resource-moderate processing and aroused systematic or heuristic processing path compatibility.

In Study 2, the strength of systematic and heuristic cues in the ad was designed roughly to the same level, thus people with different NFC levels could make their judgment on devoting how much efforts on cues and have possibilities in engaging different information processing paths. Considering that CRM would not function well under the design of stimulus, I assume that RA might not work as a mediator and there will be no interaction of RR and RA levels on persuasion, and thus that H3 will not be supported here. While the H4 and H5 which are not supported in study 1 will be detected under this condition. At the same time, H9 will also be checked by keeping the strength of systematic and heuristic cues at the same level which helps capture the effects of metacognitive experience on the choice of information processing path for people in different NFC, avoiding the appearance of any other covariate related to the inconsistent of the strength and content of cues. At last, ad evaluation was measured in experiment 2 to see whether H6, H7, and H8 are supported or not.

5.1.2 Stimuli Selection

The heuristic cue and systematic cue in experiment 2 will be kept at the same level of strength. No matter what cue people rely on, the content and strength of the cue should be as close as possible to each other and the only difference is the form: heuristic or systematic. Thus the attitude and purchase intention are comparable without considering the covariate related to different contents or figures between the cues.

The product this time was laundry detergent. Two forms of cues were designed. For the systematic cue, there was a paragraph of text which describes 4 advantages of the detergent compared to leading bargain liquid detergent brand (based variant). For the heuristic cue, it was a group of pictures which express the same 4 advantages as images.

The meta-cognitive difficulty was manipulated by the obscure and distorted font of the masthead, the faint font of the introduction of products, and blur form of pictures which is harder to process than the clear one in the ads.

5.1.3 Difficulty Assessment

The manipulation of metacognitive difficulty and the strength of the cues were checked together in a questionnaire containing 4 versions of ads (Figure 6) (Metacognitive Ease and Metacognitive difficulty in a text version ad individually; Metacognitive Ease and Metacognitive difficulty in a picture version ad individually). The goal of the manipulation check is to see whether the strengths of heuristic and systematic cue are similar, and whether the difference between metacognitive difficulty and metacognitive ease is significant.

5.1.4 Dependent & independent measures

Need For Cognition (IV)

The 6-item measurement of NFC is used here, the same as in experiment 1.

Resource Availability (IV)

We use the same measurements in experiment 1 for RA

Persuasion (DV)

The measurements of message persuasiveness are from Thompson and Hamilton (2006). It is measured again here but on a shorter scale compared to experiment 1. Participants are asked to rate the message as being not persuasive/persuasive, providing weak/strong arguments, and containing unimportant/important information.

Attitude assessment (DV)

Attitude is measured through three dimensions: attitude towards ads (Did the Ads for 'Superb Detergent' make you feel bad/good, pleasant/unpleasant, favorable/unfavorable, worthless/valuable, and not interesting/interesting; Thompson & Hamilton, 2006); Attitude towards brand (Please describe your overall feelings about the brand described in the ad you just read: Unappealing/appealing, bad/good, unpleasant/pleasant, unfavorable/favorable, unlikable/likable; Spears & Singh, 2004) and purchase intention (Assuming the products were available in their area: 1. How likely are you to buy the product of 'Superb' in the ads the next time you shop for the laundry detergent? 2. How likely are you to consider the product of 'Superb' the next time you shop for laundry detergent? 3. How likely are you to recommend to someone else the 'Superb' laundry detergent? From 'Very unlikely' to 'Very likely') with a 7-Likert scale.

Attitude Certainty (DV)

Certainty will be measured by a 7-item scale developed by Petrocelli et al. (2007). Two dimensions of attitude certainty will be captured: attitude clarity and attitude correctness. The specific items will be modified a little bit to adapt to the ads.

Clarity: 1. How certain are you that you know what your true attitude on this brand of detergent is? 2. How certain are you that the attitude you just expressed toward the laundry detergent reflects your true thoughts and feelings? 3. To what extent is your true attitude clear in your mind about the product?

Correctness: 1. How certain are you that your attitude toward the product is the correct attitude to have? 2. To what extent do you think other people should have the same attitude as you on this product? 3. How certain are you that of all the possible attitudes one might have toward this brand of detergent, your attitude reflects the right way to think and feel about it?

Path Choosing (DV)

The extent to which they engaged in imagery and analytical information processing. Two groups of questions will be asked (Thompson & Hamilton, 2006; Petrova & Cialdini, 2005).

Imagery processing: 1. I tried to form a picture of the product; 2. I imagined myself using the detergent in the ad to do laundry (Keller & McGill, 1994). 3. My evaluation was based on personal impressions and feelings. (Not very much=1 to a great deal=7).

Analytical processing: 1. I tried to use as much information about the product features as possible to evaluate it. 2. I evaluated the laundry detergent feature by feature rather than evaluating it as a whole. 3. My evaluations were based on careful thinking and reasoning. (Strongly disagree=1 to strongly agree=7).

5.1.5 Sample Characteristics and testing procedure

Through Amazon Mechanical Turk online, 288 subjects were hired to participate in this experiment. Half of them exposed to a metacognitive ease version and half of them exposed to a metacognitive difficulty version.

Familiarity and involvement of the laundry detergent were measured beforehand to reduce covariance in data analysis. Then they would view one of the two versions of ads. After that, RA, persuasion, attitude assessment, attitude certainty and path choosing preference, and NFC were collected sequentially.

5.1.6 Analysis Overview

First, the Reliability of each measurement were tested to check if each measurement is reliable. After that, the interaction of NFC and Metacognitive Experience on ad evaluation were analyzed. Besides, whether the Metacognitive Experience and RA have an interaction on attitude certainty were explored. The last

analysis was how the Metacognitive and NFC have effects on processing path choosing.

5.2 Pre-test and Pilot Study

240 subjects online from Amazon Turk viewed one of four versions of ads randomly. 60 participants in each cell were asked to read the ads and rate the difficulty by three, 5 point scales items (Alter et al., 2007): 1. From your point of view, reading the Masthead of the ad is (extremely easy - Extremely difficult); 2. How difficult for you to understand the ads? (Extremely easy-Extremely difficult); 3. How much effort you expected to have to expend to understand the ad (None at all - A great deal).

In the Text version (Figure 6-1, Figure 6-3), as expected, the fluency manipulation check showed that the disfluent masthead was considered more difficult to read ($M = 2.75$, $SD = 1.28$) than the fluent masthead ($M = 1.65$, $SD = 0.73$), $p = 0.000$. The disfluent description was also considered more difficult to understand ($M = 3.05$, $SD = 1.24$) than the fluent description ($M = 2.65$, $SD = 1.16$), $p = 0.071 < 0.1$. More importantly, participants in the meta-cognitive difficulty cell indeed expected to spend more cognitive effort to understand the whole ad ($M = 2.28$, $SD = 1.02$) than did those in the fluent cell ($M = 1.88$, $SD = 0.90$), $p = 0.025 < 0.05$.

In the Picture version (Figure 6-2, Figure 6-4), the results are similar to the Text one. Participants thought the disfluent masthead was harder to process ($M = 2.43$, $SD = 1.24$) than the fluent one ($M = 1.72$, $SD = 0.76$), $p = 0.000$. They also thought the disfluent description was more difficult to understand ($M = 3.13$, $SD = 1.16$) than the fluent description ($M = 2.67$, $SD = 1.34$), $p = 0.043 < 0.05$. What's more, more cognitive efforts were expected to be spent on the ads with the metacognitive difficulty ($M = 2.23$, $SD = 1.11$) than on the ease one ($M = 1.72$, $SD = 0.87$), $p = 0.005 < 0.05$.

In the metacognitive ease version, the difficulty of understanding for the Picture version ($M = 1.72$, $SD = 0.87$) is not significant different from the Text version ($M = 1.88$, $SD = 0.90$), $p = 0.304 > 0.1$; And the effort spent on the picture version ($M = 2.67$, $SD = 1.34$) is also not different from the Text version ($M = 2.65$, $SD = 1.16$), $p = 0.94 > 0.1$;

At the same time, in the meta-cognitive difficulty version, there was also no difference between text and picture versions, considering the difficulty of understanding and the efforts to be spent. The Picture version ($M=2.23$, $SD=1.11$) is similar to the Text version ($M=2.28$, $SD=1.03$), $p = 0.798 > 0.1$. For the effort, people spent similar energy on the Picture version ($M=3.13$, $SD=1.15$) is similar to the Text version ($M=3.05$, $SD=1.24$), $p = 0.704 > 0.1$.

In sum, the way of using faint, twisted font of text and blurred pictures were very successful to increase meta-cognitive difficulty, and the design of heuristic cue and systematic cue were also successful to contain equal strength because of the content which has similar difficulty levels and effort requirements. As a result, the final version of the stimulus was the combination of text and picture in the metacognitive difficulty version and ease version separately (Figure 4).

After that, 60 people were engaged in the final version of the pretest. Half of them viewed the full version which contains heuristic cue and systematic cue under metacognitive ease condition (Figure 7-1). And 30 left viewed the ads of meta-cognitive difficulty (Figure 7-2). As expected, the disfluent masthead was considered more difficult to read ($M = 2.67$, $SD = 1.18$) than the fluent masthead ($M=1.67$, $SD = 0.76$), $p = 0.000$. The disfluent content was also considered more difficult to understand ($M = 2.23$, $SD = 1.07$) than the fluent description ($M = 1.57$, $SD = 0.73$), $p = 0.07 < 0.1$. More importantly, participants in the meta-cognitive difficulty cell indeed expected to spend more cognitive effort to understand the whole ad ($M=3.13$, $SD=1.07$) than did those in the fluent cell ($M=2.57$, $SD=1.25$), $p = 0.065 < 0.1$. It implied that my manipulation is successful.

5.3 Mains Study

5.3.1 Ads evaluation

For the reliability for the measurements of variables (All of them have high enough Cronbach's Alpha, as shown in Table 8-1), the results showed that all of them are good enough (between .738 and .963), except the measurement for analytical

processing (Cronbach's Alpha = .488, items =3). By removing the second item of this measurement (Table 8-2), I get an acceptable Cronbach's Alpha (.555). Thus for measuring the analytical processing, only two items are kept for data analysis.

288 subjects participated in this experiment. Half of them were exposed to a metacognitive ease version and half of them were exposed to a metacognitive difficulty version. Model 15 in Hayes' process was used to detect whether RA could work as a mediator between NFC and persuasion and whether metacognitive experience can be a moderator and have interaction with RA and NFC on persuasion (Table 9). The effects of NFC on RA is not significant ($p=.2351$), and the indirect effect of NFC on persuasion through RA is also not significant (under metacognitive experience ease condition, BootLLCI = -.0086, BootULCI = 0.0422; under the difficulty condition, BootLLCI=-.0134, BootULCI=.0672);

However, the direct effects of NFC on Persuasion is significant (coeff = .3065; S.E=.1391; $p=.0284<0.05$), and the interaction between NFC and metacognitive experience is significant (coeff = -.1966, S.E=.0856; $p=.022<0.05$). The result is as I expected. The RA in the CRM cannot work anymore in a moderate effort of processing. However, the NFC and metacognitive experience show their effects on persuasion.

For further exploring whether the interaction between NFC and metacognitive experience could have influences on ad evaluations, a MANOVA was conducted (Table 10). The groups of NFC were split as the way study 1 did. Subjects' scores from 1.00 to 3.17 (31.6%) were set as low NFC group, those from 3.33 to 3.83 (30.9%) were set as middle NFC group, and those from 4.00 to 5.00 (37.5%) were set as high NFC group. Only low and high levels of NFC were kept in order to simplify the explanation of results.

Removing the level 2 of NFC, the multivariate result of all ad attitude, certainty, persuasion were listed below: Wilks' Lambda (Table 10-1) : Sig: NFC (.025); Metacognitive experience (.062); interaction for NFC * Metacognitive experience (.298); p -value of 'Between subjects effects' test (Table 10-2): 'Need for cognition' effect on persuasion (.941), attitude toward ads (.374), attitude toward brands (.155), certainty (.010), purchase intention (.354); 'Metacognitive experience' effect on persuasion (.052),

attitude toward ads (.011), attitude toward brands (.004), certainty (.789), purchase intention (.011); Interaction of 'Metacognitive experience' and 'NFC' effect on persuasion (.039), attitude toward ads (.023), attitude toward brands (.036), certainty (.175), purchase intention (.055).

We can conclude that except for 'certainty' (Figure 8-4), persuasion and other ad evaluation were affected by the interaction. According to the plots of estimated marginal means (Figure 8-1), I find that when NFC is low, persuasion is similar no matter the ease or difficult metacognitive experience. However, when the NFC is high, persuasion on the ease condition increases, while the persuasion score decreases on the difficult condition. That is because meta-cognitive experience invokes critical thinking and people in high NFC become more curious towards the content of the ads, thus the persuasion score decreases, which also transmit the effects to other ad evaluations. H4b and H5 were supported here, and H4a is not supported.

According to Figure 8-2, 8-3, and 8-5, similar patterns were found on ad attitude and purchase intention. To sum up, the H6b (For people with high NFC, there will be a more negative attitude of ads/brands and purchase intention toward metacognitive difficulty for people with high NFC) is supported; and H6c (The difference of mean attitude of ads/brands and purchase intention will be larger between ease and difficult condition, compared to people with low NFC) is supported. While H6a is not supported.

5.3.2 Certainty and RA

However, although certainty is not affected by the interaction of NFC and metacognitive experience, the interaction of RA and Metacognitive experience was found that it has effects on certainty.

RA was separated into 3 levels according to the frequency of the values as study 1 did. For subjects' values falling between 2.2 and 5.4 (32.2%), they were assigned to low RA. Those between 5.6 to 6.2 were assigned to middle RA, and those between 6.4 and 7.00 were assigned to high RA.

An ANOVA was conducted to explore the relationship between RA, metacognitive experience and certainty. Subjects belonging to Mid RA were removed and only those belonging to Low RA and High RA were used in the analysis. According to the test of between-subjects effects (Table 11-1), although the main effects of metacognitive experience is not significant ($p = .702$), the main effects of RA on certainty is significant ($p = .000$), and the interaction is significant too ($p = .022$)

For further explanation, simple t-tests based on the descriptive statistics (Table 11-2) were conducted, and the plot of estimated marginal means was drawn (Figure 9). Based on Table 11-3, when RA increases from low to high, the difference of certainty between metacognitive difficulty and ease was marginally significant ($p_{\text{low RA}}=.148$, and $p_{\text{high RA}}=.052$). However, under metacognitive ease conditions, the certainty of people with high RA is significantly higher than those with low RA ($p=.000$). While under metacognitive difficulty conditions, when RA reached a high level, the certainty did not increase very significantly compared to that at low RA level ($p=0.054$), the difference is marginally significant.

As a conclusion, H7 that the certainty will be strengthened with the increase of RA level under metacognitive ease conditions while the certainty would not change to the same extent for people with different RA levels under metacognitive difficulty was supported here, there is an interaction between RA and Metacognitive experience on certainty.

5.3.3 Choosing of Processing Path

Do the levels of NFC and Metacognitive experience have an interaction on the choosing of the path? We use 2 items: the imagery processing path and analytical processing path to measure how they process the information of ads.

Again, ANOVA was used to explore the effects. For the imagery processing, according to Test of between-subjects effects (Table 12-1), the main effects and the interaction were not significant at all (metacognitive experience: $\text{sig}=.077$, NFC: $p = .866$; interaction between metacognitive experience and NFC: $p = .952$).

For the analytical processing (Table 13-1), only the main effect of NFC was significant ($p=.000$), while the main effect of metacognitive experience ($p=.262$) and interaction ($p=.603$) were not. To further explore, simple T-tests based on descriptive statistics (Table 13-2) were conducted and plot of marginal means was drawn (Figure 11), and I find that people with low NFC always have significantly lower scores on analytical processing than those with high NFC, no matter if under metacognitive ease condition ($p=.0008$), or metacognitive difficult condition ($p=.0108$).

As a result, unfortunately, the H8a and H9a were not supported: there is no interaction between NFC and Metacognitive Experience on choosing a processing path. To be specific, the metacognitive experience cannot work as a moderator to influence the preference on imagery or analytical processing path among people in different NFC.

Thus H8b and H9b were supported as there is no difference on the preference on imagery or analytical processing path under any type of metacognitive experience.

There are two possible reasons that could lead to insignificant results. I noticed that among 199 subjects (middle NFC level removed), for the measurement of analytical processing, the range of the score is from 3 to 7(7-Likert scale), Median is 6.0, and Mean value is 6.0201. It means the overall preference in analytical processing is distributed among a high level. As for imagery processing, the range is from 1 to 7(7-Likert scale), Median is 5.0, and the Mean value is 4.8844. The preference for imagery processing seems in a normal distribution. The higher than normal reliance on analytical processing path among all NFC might due to the reason below: First, The Measurement of analytical processing is not good enough to capture the variable because the Cronbach's alpha is a bit low (.555). The data collected from not good enough internal consistency measurements might lead to inaccurate results. While it is also due to the sample size. Another possible reason for the higher than the normal distribution of the analytical scores maybe because of the design of the stimulus.

Another explanation for the insignificant result might be attributed to the choosing of the attributes of the product in ads. Environmental friendly, cleaning power, color protection, and scent belonged to typical attributes of detergents that advocated by

most well-known brands in the category. For customers who are exposed to the ads focusing on typical attributes, they are more likely to choose an analytical processing path, as a 'piecemeal review' of product attributes were evoked (Sujan, 1985; Pillai & Godsmith, 2008). The incongruity to their beliefs raised while viewing the typical attributes in comparative ads, and thus leads to analytical analysis on each piece of information. While comparative ads focus on atypical attributes, which usually interpreted as a weak claim, benefits from fewer counterarguments and association effects that enhance imagination through association with leading well-known brands in comparative ads (Droge & Darmon, 1987; Pillai & Godsmith, 2008).

Considering the typical attributes contained in my stimulus, I deduce that subjects were driven to engage in piecemeal information processing and generally have a higher level of analytical analysis. As a result, the manipulation of the metacognitive experience cannot function well to incite subjects to choose different processing paths, because the content of ads already drive subjects heading to analytical processing path although they view the metacognitive ease masthead at the beginning (which assumed to choose imagery processing path).

6.0 General Discussion and Implications

The key purpose of this sections is to summarise the findings and examine the insights with regards to the research conducted. This was based on the results and analysis conducted, which are discussed above.

6.1 Theoretical Implications

Previous literature available related to ICA is limited due to the better effectiveness of DCA while competing against specific competitor on specific featured attributes. There is a knowledge gap on how ICA could function well, based on popular persuasion models, considering its superiority on outcompeting overall competitors in the market. Besides, most of the previous research focused on how the positive or negative effects of metacognitive experience formed, or when the influence of

metacognitive experience appear in non-comparative advertisements, but none of them try to discuss the metacognitive experience under popular persuasion models, such as: what kind of factors could act as to engage in the information processing model and eventually affect products evaluation from different aspects? And whether individuals performed differently when they come across similar metacognitive experiences considering an individual's difference?

Among the previous research, there are neither studies conducted with regards to metacognitive experience on comparative advertising areas, nor studies related to metacognitive experience conducted in a comparative advertising environment. Therefore, this thesis explored and examined whether the most popular persuasion model (DMM and CRM) can also function well in comparative advertising considering individual differences and Metacognitive experiences, which could give support to future research related to this direction.

Based on the results of the experiment conducted, in the Indirect comparative advertising, the DMM model and CRM model function well under suitable processing situations (general processing or resource-intensive, systematic message processing) which could be manipulated by the content of the ads. And the individual difference (NFC) and Metacognitive experience, as situational factors, were specifically tested to explain how they have effects on persuasion, certainty, and ad evaluation in the two models through different ways.

6.2 Managerial Implications

Considering the advantages of ICA on competing overall competitors in the market rather than specific featured attributes, it is worth studying how to manipulate the ICA in metacognitive levels, considering individual difference, to improve persuasiveness and ad evaluations. The results could effectively help advertisers to make advertising strategies for improving brand overall impressions and further growing markets, especially for those in high context societies.

For example, it is popular for advertisers in high technology fields to increase the level of metacognitive difficulty, such as using complicated terms that can't be understood at a glance, or create a curious and stressful atmosphere, building a unique and advanced brand impression compared to other competitors. This strategy might be very useful to stand out from other brands, but negative attitude will be also invoked for the audience with high NFC. However, people with Low NFC will not be affected. Under this condition, designing different types of ads for people with different level of NFC will become necessary for reaching the goal of transmitting appropriate brand impression without hurting the favorability.

6.3 Limitations

First of all, considering the different attitudes to indirect comparative advertising in high and low context society, the samples collected from the USA where indirect comparative advertising are less popular cannot represent the performance of ICA in high context societies, such as Asia or India. And although the participants are from American geographically, culture related questions can be added to distinguish which context culture they come from (low or high), because people from different context culture might act differently. Besides, the favorability of imagery stimuli and systematic stimuli should be checked under different metacognitive experiences to ensure the manipulation indeed evoke enough critical thinking and preference on systematic cue just like in Alters (2007). If the difficulty level is not high enough, preference on analytical processing might not happen. What's more, the way to increase the difficulty of metacognitive experience in my experiment is to use faint, obscure fonts of text. Although it is a common way for manipulation in previous research, it is still not common in real life. A more popular and practical way to manipulate metacognitive difficulty is still a gap in the literature.

The last limitation is related to sample size. The distribution in Need for Cognitive implied that the subjects in my sample seems to locate at a slightly higher level of NFC because of the large median score, thus the people classified to low level of NFC in my study actually should belong to a higher NFC level compared to those in real life. A

repeated experiment of large sample size containing subjects with normal distribution on NFC level should be conducted.

6.4 Future Directions

Several areas could be explored for future research in the given field. Features that has been fully explored in persuasion models could be taken into consideration under indirect comparative advertising to find its utilization on improving the effectiveness of ICA in the market. Newest advances and findings in metacognitive fields should be also given some thought. Additionally, a larger scale study with a larger sample size and more types of stimuli is necessary to provide more support to the conclusion in this study. At last, cross cultural factors such as high or low context culture can be add as individual difference to explore consumers' reactions worldwide.

7.0 Conclusion

This thesis reveals insights into the metacognitive experience, Resource availability, Need for cognition, and their effect on persuasion, ad evaluation, and processing path choosing under Indirect comparative advertising.

First, it built an apparent connection between resource requirement and metacognitive experience which has never been discussed in previous research, which always connected cognitive load with resource requirement. My study explored a new insight on cognitive resource matching theory at the metacognitive level: Metacognitive difficulty implies a high level of RR because more efforts are expected to be devoted to understand the message.

Based on that, by creating a condition that evokes resource-intensive, systematic message processing and thus CRM seems to be applicable, my study use individual difference (NFC) as an effective way to manipulate RA, successfully prove that metacognitive features can also function well within a resource matching model, which is a gap in previous metacognitive research.

In addition, a general environment of Dual Mediation Model was also explored. We found that for people with high NFC, persuasion, attitude towards the ad, attitude towards the brand, and purchase intention are significantly higher in metacognitive ease conditions than difficulty conditions. However, for people with low NFC, the difference of persuasion between the metacognitive ease condition and difficulty condition is not significant. What's more, certainty will be strengthened with the increase of RA level under metacognitive ease conditions, while the certainty would not change significantly for people with different RA levels under metacognitive difficulty.

Unfortunately, no interaction between NFC and Metacognitive Experience on choosing a processing path were detected in my study because of potential limitations.

Reference List

Notes:

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2. **Resource:** <https://demarco.com.au/de-marco-thinks/international-advertising-law-advertising-regulation-in-china>

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Appendices

Appendix A: Figures

Figure 3: Heuristic cue (Pretest of Study 1)

Figure 3-1: equal-level comparison



Figure 3-2: Highlight white sedan



Figure 3-3: Highlight grey sedan



Figure 4: stimuli of study 1

Figure 4-1:

A Weekly Report on Motor Trend Magazine
Monday, July 05 2019

Deion Kessler's weekly column review of sedan

MODEL: [REDACTED] Color: Grey



It should be at the top of your list if you're considering a midsize sedan.

The new dynamic and sophisticated exterior design make it a standout in its segment.

The new GD engine series features a more compact variable-geometry turbocharger which is 30% more compact and has a new impeller and turbines that make for faster engine response and better Fuel Efficiency.


What's more, the high torsion rigidity frame gives the driver and passenger a more "solid" feel when the car is running on the road which is bumpy and has lots of potholes on it. I highly recommend it.

Figure 4-2:

A weekly Report on Motor Trend Magazine

Monday, July 05 2019

Deion Kessler's weekly column review of sedan
MODEL: ██████████ *Color: Grey*



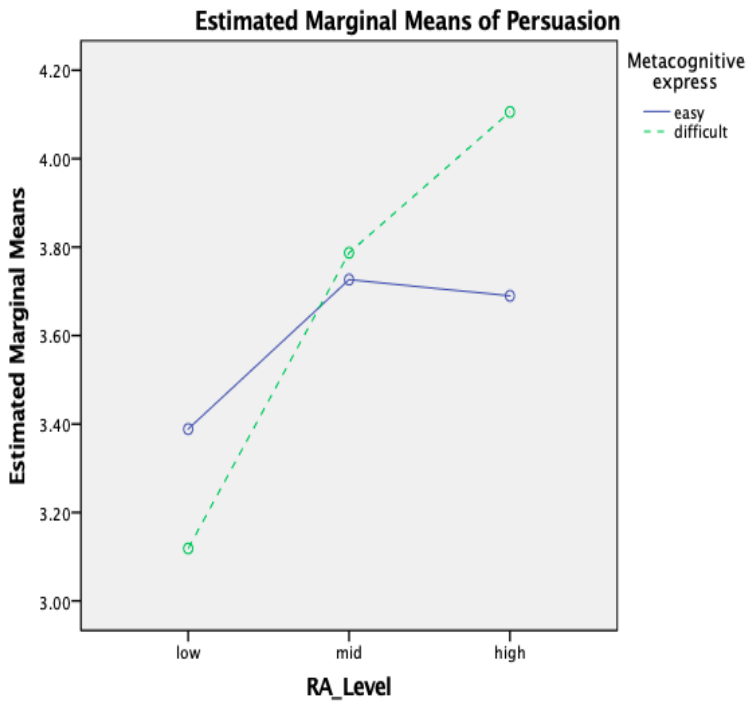
It should be at the top of your list if you're considering a midsize sedan.

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The new GD engine series features a more compact variable-geometry turbocharger which is 30% more compact and has a new impeller and turbines that make for faster engine response and better Fuel Efficiency.

What's more, the high torsion rigidity frame gives the driver and passenger a more "solid" feel when the car is running on the road which is bumpy and has lots of potholes on it. I highly recommend it.


Figure 5: Estimated Marginal Means of Persuasion of study 1




Covariates appearing in the model are evaluated at the following values: Fmlrty = 5.1467, Invlmmt = 4.5950

Figure 6 : Pilot test for study 2

Figure 6-1: Text * Metacognitive Ease Version



4 Outstanding Advantages of Superb Liquid Laundry Detergent



The 1st plant-based detergent obtaining USDA Certification with 91% of biobased content;

With 6x cleaning power compared with the leading bargain liquid detergent, fights stains and odors with higher efficiency;

Offers the brilliant clean you know and helps your fabrics look brighter and whiter with the newest technology, by reviving dingy fabrics and preventing the dirty wash water from soaking back into them;

With added scent pearls, refreshing Breeze scent infuses your clothes with floral, fruity and woody notes for a 3x longer-lasting, clean scent vs other popular brands.

Figure 6-2: Picture * Metacognitive Ease Version




4 Outstanding Advantages of Superb Liquid Laundry Detergent



	<p>1st PLANT-BASED DETERGENT</p>  <p>USDA CERTIFIED BIOBASED PRODUCT PRODUCT - 91%</p> <p>* 91% Plant-based detergent</p>	<p>Brighter&Whiter*</p> <p>vs</p>  <p>Preventing Dirty Water from Soaking Back</p>
	<p>6X cleaning* power</p>  <p>or</p>	<p>3X Freshness* That Lasts Longer</p> <p>vs</p> 

*Superb VS. Leading bargain liquid detergent brand, based variant

Figure 6-3: Text * Metacognitive Difficult Version



4 Outstanding Advantages of Superb Liquid Laundry Detergent



The 1st plant-based detergent obtaining USDA Certification with 91% of biobased content;

With 6x cleaning power compared with the leading bargain liquid detergent, fights stains and odors with higher efficiency;

Offers the brilliant clean you know and helps your fabrics look brighter and whiter with the newest technology, by reviving dingy fabrics and preventing the dirty wash water from soaking back into them;

With added scent pearls, refreshing Breeze scent infuses your clothes with floral, fruity and woody notes for a 3x longer-lasting, clean scent vs other popular brands.

Figure 6-4: Picture * Metacognitive Difficult Version



4 Outstanding Advantages of Superb Liquid Laundry Detergent



1st PLANT-BASED DETERGENT



USDA CERTIFIED BIOBASED PRODUCT PRODUCT 91%

* 91% Plant-Based detergent

Brighter & Whiter*

vs



Preventing Dirty Water from Soaking Back

6X cleaning* power



3X Freshness* That Lasts Longer

vs



*Superb VS. Leading bargain liquid detergent brand, based variant

Figure 7: Main Study Stimulus for Study 2

Figure 7-1:



*Superb VS. Leading bargain liquid detergent brand, based variant

The 1st plant-based detergent obtaining USDA Certification with 91% of biobased content;

With 6x cleaning power compared with the leading bargain liquid detergent, fights stains and odors with higher efficiency;

Helps your fabrics look brighter and whiter with the newest technology, by reviving dingy fabrics and preventing the dirty wash water from soaking back into them;

With added scent pearls, refreshing Breeze scent infuses your clothes with floral, fruity and woody notes for a 3x longer-lasting, clean scent vs other popular brands.

Figure 7-2:



*Superb VS. Leading bargain liquid detergent brand, based variant

The 1st plant-based detergent obtaining USDA Certification with 91% of biobased content;

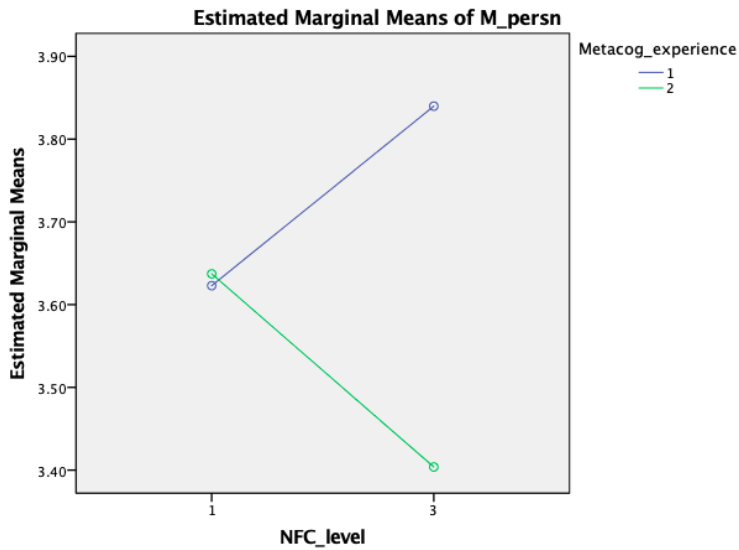
With 6x cleaning power compared with the leading bargain liquid detergent, fights stains and odors with higher efficiency;

Helps your fabrics look brighter and whiter with the newest technology, by reviving dingy fabrics and preventing the dirty wash water from soaking back into them;

With added scent pearls, refreshing Breeze scent infuses your clothes with floral, fruity and woody notes for a 3x longer-lasting, clean scent vs other popular brands.

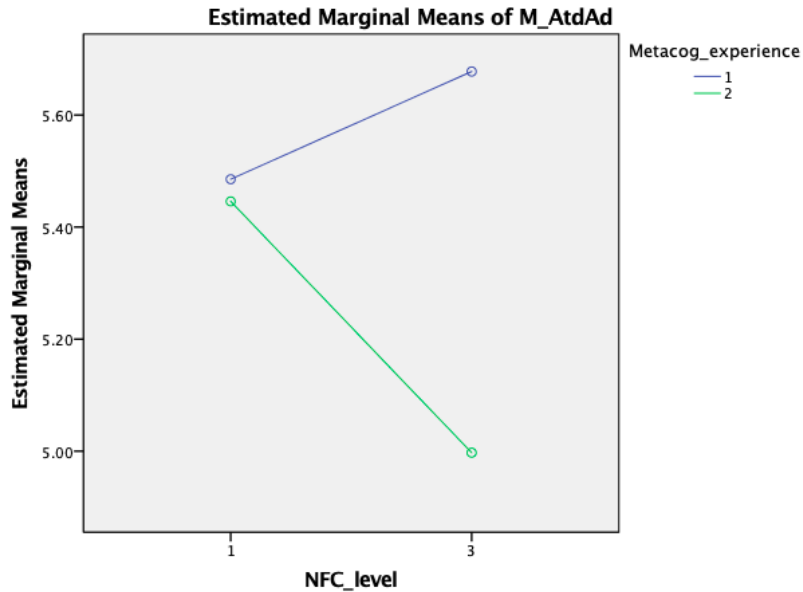
Figure 8: Interaction of NFC*Metacognitive experience

Figure 8-1: NFC* Metacognitive Experience on Persuasion



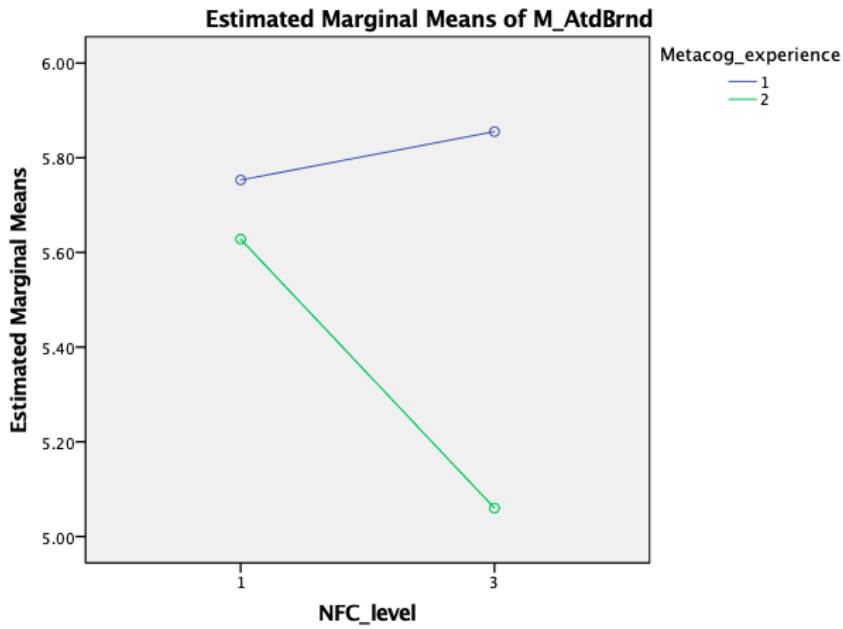
Covariates appearing in the model are evaluated at the following values: M_Invlv = 5.2848, M_Fmlrty = 5.6382

Figure 8-2: NFC* Metacognitive Experience on Attitude Toward Ads



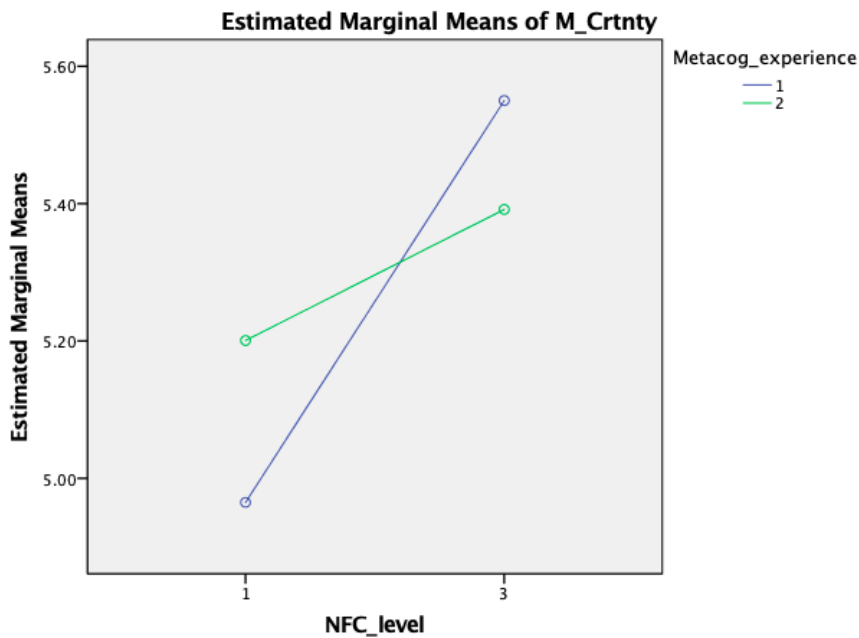
Covariates appearing in the model are evaluated at the following values: M_Invlv = 5.2848, M_Fmlrty = 5.6382

Figure 8-3: NFC* Metacognitive Experience on Attitude toward Brands



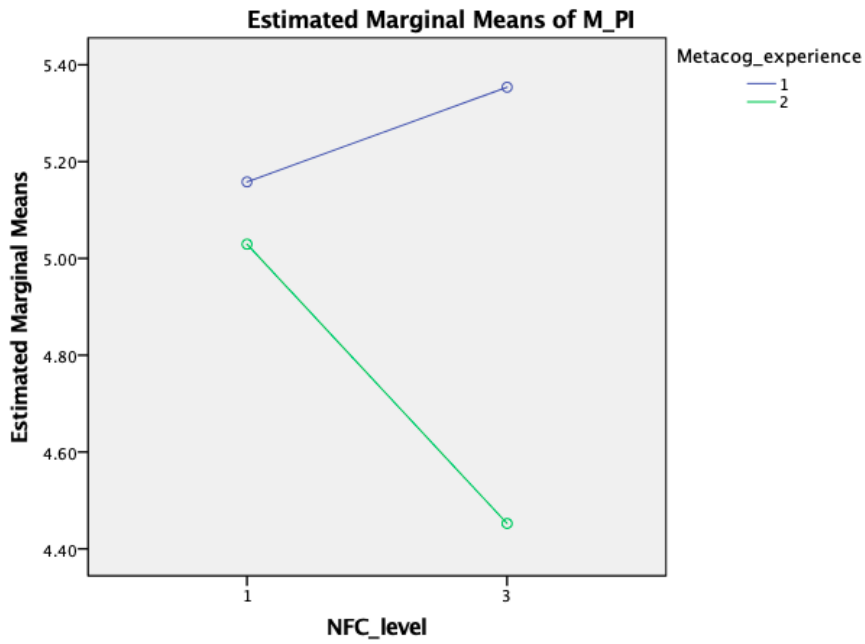
Covariates appearing in the model are evaluated at the following values: M_Invlv = 5.2848, M_Fmlrty = 5.6382

Figure 8-4: NFC* Metacognitive Experience on Certainty



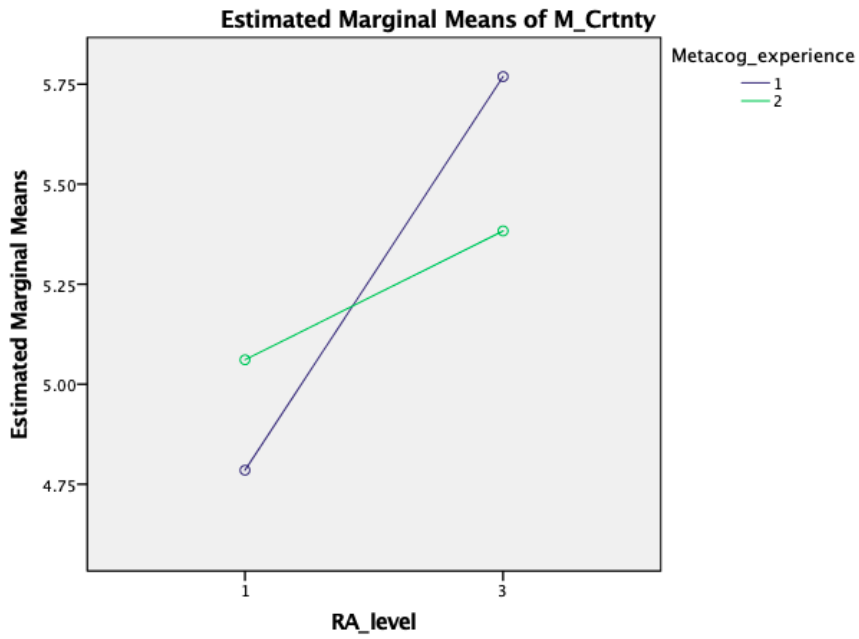
Covariates appearing in the model are evaluated at the following values: M_Invlv = 5.2848, M_Fmlrty = 5.6382

Figure 8-5: NFC* Metacognitive Experience on Purchase Intention



Covariates appearing in the model are evaluated at the following values: M_Invlv = 5.2848, M_Fmlrty = 5.6382

Figure 9: RA * Metacognitive Experience on Certainty



Covariates appearing in the model are evaluated at the following values: M_Invlv = 5.2358, M_Fmlrty = 5.4681

Figure 10: NFC * Metacognitive Experience on Imagery Analysis

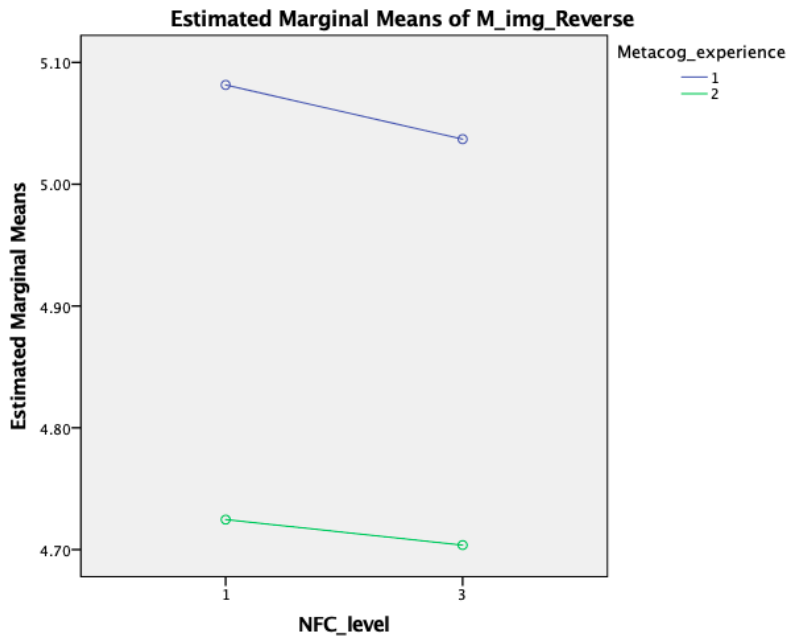
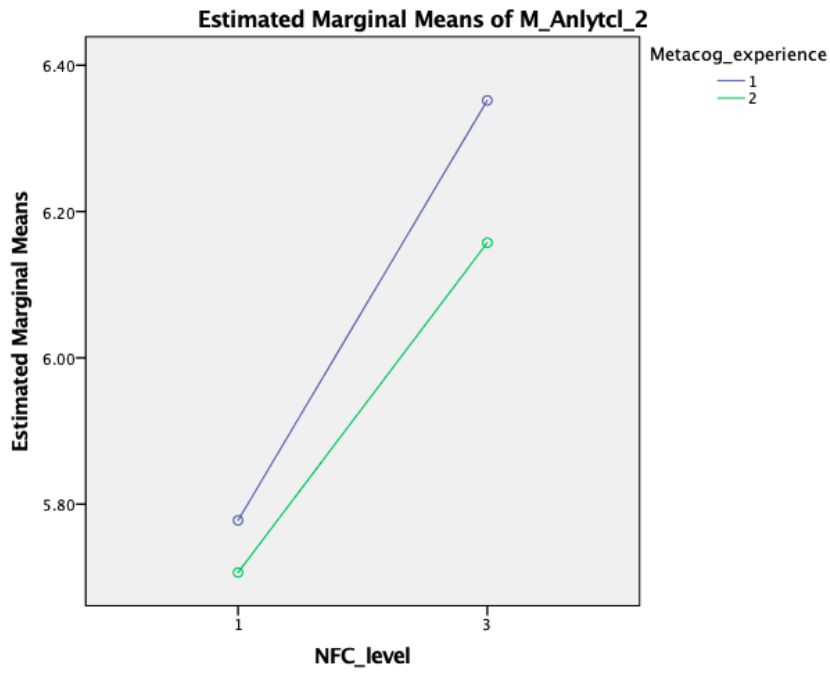


Figure 11: NFC * Metacognitive Experience on Analytical Analysis



Appendix B: Tables

Table 1: Pretest of study 1_ Score of potential targeted products

	Tooth Paste	Fridge	Laundry Detergent	Sedan	Audio
MEAN*	2.47	2.67	2.9	3.58	3.93
SD	0.765	0.73	0.833	1.473	1.302
N	20	20	20	20	20

* Average score of potential targeted products on Involvement and Prior Product Knowledge

Table 2: Pretest of study 1_ Features and its importance scores

Table 2-1: Nine Common Features of the Sedan

Exterior Design (eg: colour, shape)
Interior Accessories (eg: glove box, multi-function cup holder, leather trim seats)
Gas Diesel Engine (eg: horsepower, fuel efficiency, seamless acceleration)
Quietness (eg: Dash Silencer; Acoustically insulated flooring)
Solidity (eg: torsional rigidity, providing a "solid" feel when the car running on the bumpy road with many potholes)

Interior High-Tech Equipment (eg: Electronic seat adjustment with memory function, Multi-zone climate systems)
Electronic Safety System (eg: Lane Departure Alert, Blind Spot Monitor, Automatic emergency braking)
Popularity (eg: one of the best-selling model among the sedan markets)
Seat Space and Storage Space (eg: enough legroom, flexible split folding rear seats)

Table 2-2: Mean value of the importance of feature

	Exterior Design	Interior Accessories	GD Engine	Quietness	Solidity
Mean*	3.62	4.67	4.30	5.58	4.30
	Interior High-Tech equipment	Elec safety system	Popularity	Seat/Storage space	
Mean*	5.40	4.75	7.30	5.09	

***the lower mean value, the higher importance of the feature.**

Table 3: NFC Scale-6

The Very Efficient Assessment of Need for Cognition: Developing a Six-Item Version Gabriel Lins de Holanda Coelho , Paul H. P. Hanel, Lukas J. Wolf (2018)

- 01. I would prefer complex to simple problems.
- 02. I like to have the responsibility of handling a situation that requires a lot of thinking.
- 03. Thinking is not my idea of fun. (R)
- 04. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities. (R)

11. I really enjoy a task that involves coming up with new solutions to problems.

15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

Table 4: Reliability for study 1

	Cronbach's Alpha	N of items
Familiarity	.877	3
Involvement	.964	6
Resource Availability	.922	5
Persuasion	.821	4
Need for cognition	.896	6

Table 5: Mediator effects of RA

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 3.4 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2018). www.guilford.com/p/hayes3

Model : 4

Y : Persuasi

X : NFC

M : RA

Covariates:

Fmlrty Invlmnt

Sample

Size: 200

OUTCOME VARIABLE:

RA

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3584	.1285	.9618	9.6310	3.0000	196.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.2559	.3205	13.2789	.0000	3.6238	4.8879
NFC	.1990	.0647	3.0763	.0024	.0714	.3266
Fmlrty	.0409	.0531	.7717	.4412	-.0637	.1456
Invlmmt	.1446	.0470	3.0805	.0024	.0520	.2372

OUTCOME VARIABLE:

Persuasi

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5504	.3029	.5045	21.1813	4.0000	195.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.5780	.3199	4.9325	.0000	.9471	2.2090
NFC	-.0435	.0480	-.9058	.3662	-.1381	.0512
RA	.2784	.0517	5.3815	.0000	.1764	.3804
Fmlrty	-.0655	.0385	-1.7010	.0905	-.1414	.0104
Invlmmt	.1998	.0348	5.7395	.0000	.1312	.2685

***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
-.0435	.0480	-.9058	.3662	-.1381	.0512

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
RA	.0554	.0220	.0171 .1027

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

NOTE: Variables names longer than eight characters can produce incorrect output.

Shorter variable names are recommended.

----- END MATRIX -----

Table 6: Two-way ANOVA of study 1

Table 6-1: Tests of Between-Subjects effects

Tests of Between-Subjects Effects					
Dependent Variable: Persuasion					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	46.257 ^a	7	6.608	13.374	.000
Intercept	120.798	1	120.798	244.482	.000
Fmlrty	.975	1	.975	1.972	.162
Invlvmt	14.832	1	14.832	30.018	.000
RA_Level	14.100	2	7.050	14.269	.000
Metacog_Exp	.236	1	.236	.477	.491
RA_Level * Metacog_Exp	3.891	2	1.946	3.938	.021
Error	94.866	192	.494		

Total	2772.875	200			
Corrected Total	141.124	199			
a. R Squared = .328 (Adjusted R Squared = .303)					

Table 6-2: Descriptive Statistics

Descriptive Statistics				
Dependent Variable: Persuasion				
RA_Level	Metacognitive express	Mean	Std. Deviation	N
low	easy	3.2941	.58863	34
	difficult	2.9929	.79633	35
	Total	3.1413	.71290	69
mid	easy	3.7794	.69020	34
	difficult	3.8182	.60037	33
	Total	3.7985	.64291	67
high	easy	3.7500	.91140	32
	difficult	4.1953	.88840	32
	Total	3.9727	.92057	64
Total	easy	3.6050	.76474	100
	difficult	3.6500	.91632	100

	Total	3.6275	.84212	200
--	-------	--------	--------	-----

Table 6-3: P-value of the simple t-test for the difference of estimated marginal means between different groups.

	Low	Mid	High
Between Meta_Ease and Meta_Diff	0.0326	0.7134	0.0522
	Between Low/Mid	Between Low/High	Between Mid/High
Meta_Ease	0.0028	0.8564	0.02
Meta_Diff	0.00001	0.0176	0.00001

Table 7: 2-Way ANOVA for NFC and Metacognitive Experience on persuasion

Tests of Between-Subjects Effects					
Dependent Variable: Persuasion					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	21.978 ^a	5	4.396	6.190	.000
Intercept	83.738	1	83.738	117.927	.000
Invlmmt	19.761	1	19.761	27.829	.000
Fmlrty	2.914	1	2.914	4.104	.045

Metacog_Exp	.063	1	.063	.089	.766
NFC_level	.437	1	.437	.616	.434
Metacog_Exp * NFC_level	1.487	1	1.487	2.094	.150
Error	89.471	126	.710		
Total	1781.375	132			
Corrected Total	111.449	131			
a. R Squared = .197 (Adjusted R Squared = .165)					

Table 8: reliability

Table 8-1:

	Cronbach's Alpha	N of items
Familiarity	.875	3
Involvement	.919	6
Need for cognition	.884	6
Resource Availability	.896	5
Persuasion	.852	4
Attitude toward Ads	.925	5
Attitude toward Brands	.963	5
Certainty	.875	6

Img path	.738	3
Analytical path	.488	3
Purchase intention	.905	3

Table 8-2:

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Anlytcl1	11.0104	3.996	.334	.373
Anlytcl2	11.9306	2.741	.254	.555
Anlytcl3	11.2604	3.496	.382	.277

Table 9: Hayes' model test for Study 2

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 3.4 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Documentation available in Hayes (2018). www.guilford.com/p/hayes3

Model : 15

Y : M_persn

X : M_NFC

M : M_RA

W : Metacog_

Covariates:

M_Invlv M_Fmlrty

Sample

Size: 288

OUTCOME VARIABLE:

M_RA

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4400	.1936	.6675	22.7316	3.0000	284.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.7260	.2826	13.1848	.0000	3.1697	4.2822
M_NFC	.0588	.0494	1.1898	.2351	-.0385	.1560
M_Invlv	.2286	.0439	5.2047	.0000	.1421	.3150
M_Fmlrty	.1278	.0378	3.3810	.0008	.0534	.2022

OUTCOME VARIABLE:

M_persn

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5699	.3248	.4928	19.2393	7.0000	280.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.0307	.9460	1.0895	.2769	-.8316	2.8929
M_NFC	.3065	.1391	2.2028	.0284	.0326	.5804
M_RA	.0948	.1530	.6197	.5360	-.2063	.3959
Metacog_	-.2859	.5935	-.4816	.6304	-1.4542	.8825
Int_1	-.1966	.0856	-2.2968	.0224	-.3651	-.0281
Int_2	.1314	.0933	1.4092	.1599	-.0522	.3150
M_Invlv	.1544	.0396	3.8953	.0001	.0764	.2324
M_Fmlrty	.0817	.0332	2.4597	.0145	.0163	.1471

Product terms key:

- Int_1 : M_NFC x Metacog_
- Int_2 : M_RA x Metacog_

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	.0127	5.2755	1.0000	280.0000	.0224
M*W	.0048	1.9859	1.0000	280.0000	.1599

Focal predict: M_NFC (X)

Mod var: Metacog_ (W)

Conditional effects of the focal predictor at values of the moderator(s):

Metacog_	Effect	se	t	p	LLCI	ULCI
1.0000	.1099	.0634	1.7344	.0840	-.0148	.2346
2.0000	-.0867	.0576	-1.5043	.1336	-.2002	.0268

***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

Conditional direct effect(s) of X on Y:

Metacog_	Effect	se	t	p	LLCI	ULCI
1.0000	.1099	.0634	1.7344	.0840	-.0148	.2346
2.0000	-.0867	.0576	-1.5043	.1336	-.2002	.0268

Conditional indirect effects of X on Y:

INDIRECT EFFECT:

M_NFC -> M_RA -> M_persn

Metacog_	Effect	BootSE	BootLLCI	BootULCI
1.0000	.0133	.0130	-.0086	.0422
2.0000	.0210	.0202	-.0134	.0672

Index of moderated mediation (difference between conditional indirect effects):

Index	BootSE	BootLLCI	BootULCI
Metacog_	.0077	.0102	-.0064 .0341

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

NOTE: Variables names longer than eight characters can produce incorrect output.

Shorter variable names are recommended.

----- END MATRIX -----

*Table 10: MNOVA for NFC*Metacognitive Experience on ad evaluation*

Table 10-1: Wilks' Lambda

Multivariate Tests ^a									
	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^c
Intercept	Pillai's Trace	.441	29.798 ^b	5.000	189.000	.000	.441	148.992	1.000
	Wilks' Lambda	.559	29.798 ^b	5.000	189.000	.000	.441	148.992	1.000
	Hotelling's Trace	.788	29.798 ^b	5.000	189.000	.000	.441	148.992	1.000
	Roy's Largest Root	.788	29.798 ^b	5.000	189.000	.000	.441	148.992	1.000
M_Invlv	Pillai's Trace	.252	12.722 ^b	5.000	189.000	.000	.252	63.611	1.000
	Wilks' Lambda	.748	12.722 ^b	5.000	189.000	.000	.252	63.611	1.000
	Hotelling's Trace	.337	12.722 ^b	5.000	189.000	.000	.252	63.611	1.000
	Roy's Largest Root	.337	12.722 ^b	5.000	189.000	.000	.252	63.611	1.000
M_Fmlrty	Pillai's Trace	.097	4.046 ^b	5.000	189.000	.002	.097	20.231	.949
	Wilks' Lambda	.903	4.046 ^b	5.000	189.000	.002	.097	20.231	.949

	Hotelling's Trace	.107	4.046 ^b	5.000	189.000	.002	.097	20.231	.949
	Roy's Largest Root	.107	4.046 ^b	5.000	189.000	.002	.097	20.231	.949
Metacog_experience	Pillai's Trace	.054	2.140 ^b	5.000	189.000	.062	.054	10.700	.697
	Wilks' Lambda	.946	2.140 ^b	5.000	189.000	.062	.054	10.700	.697
	Hotelling's Trace	.057	2.140 ^b	5.000	189.000	.062	.054	10.700	.697
	Roy's Largest Root	.057	2.140 ^b	5.000	189.000	.062	.054	10.700	.697
NFC_level	Pillai's Trace	.065	2.635 ^b	5.000	189.000	.025	.065	13.174	.799
	Wilks' Lambda	.935	2.635 ^b	5.000	189.000	.025	.065	13.174	.799
	Hotelling's Trace	.070	2.635 ^b	5.000	189.000	.025	.065	13.174	.799
	Roy's Largest Root	.070	2.635 ^b	5.000	189.000	.025	.065	13.174	.799
Metacog_experience * NFC_level	Pillai's Trace	.031	1.226 ^b	5.000	189.000	.298	.031	6.132	.430
	Wilks' Lambda	.969	1.226 ^b	5.000	189.000	.298	.031	6.132	.430
	Hotelling's Trace	.032	1.226 ^b	5.000	189.000	.298	.031	6.132	.430
	Roy's Largest Root	.032	1.226 ^b	5.000	189.000	.298	.031	6.132	.430

a. Design: Intercept + M_Invlv + M_Fmlrty + Metacog_ experienc e + NFC_level + Metacog_ experienc e * NFC_level									
b. Exact statistic									
c. Compute d using alpha = .05									

Table 10-2: Tests of Between-Subjects Effects

Tests of Between- Subjects Effects									
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Square d	Noncent . Paramet er	Observed Power ^f
Corrected Model	M_persn	41.622 ^a	5	8.324	14.541	.000	.274	72.706	1.000
	M_AtdAd	91.472 ^b	5	18.294	19.028	.000	.330	95.138	1.000
	M_AtdBrnd	77.302 ^c	5	15.460	12.493	.000	.245	62.466	1.000
	M_Crtnty	25.574 ^d	5	5.115	4.978	.000	.114	24.889	.982

	M_PI	105.307 ^e	5	21.061	10.741	.000	.218	53.704	1.000
Intercept	M_persn	21.181	1	21.181	36.999	.000	.161	36.999	1.000
	M_AtdAd	52.948	1	52.948	55.069	.000	.222	55.069	1.000
	M_AtdBrnd	71.048	1	71.048	57.413	.000	.229	57.413	1.000
	M_Crtnty	120.933	1	120.933	117.694	.000	.379	117.694	1.000
	M_PI	52.872	1	52.872	26.964	.000	.123	26.964	.999
M_Invlv	M_persn	21.225	1	21.225	37.075	.000	.161	37.075	1.000
	M_AtdAd	54.545	1	54.545	56.730	.000	.227	56.730	1.000
	M_AtdBrnd	35.742	1	35.742	28.883	.000	.130	28.883	1.000
	M_Crtnty	3.465	1	3.465	3.372	.068	.017	3.372	.447
	M_PI	70.689	1	70.689	36.049	.000	.157	36.049	1.000
M_Fmlrty	M_persn	1.378	1	1.378	2.407	.122	.012	2.407	.339
	M_AtdAd	.661	1	.661	.688	.408	.004	.688	.131
	M_AtdBrnd	1.969	1	1.969	1.591	.209	.008	1.591	.241
	M_Crtnty	2.852	1	2.852	2.776	.097	.014	2.776	.381
	M_PI	1.671	1	1.671	.852	.357	.004	.852	.151
Metacog_experience	M_persn	2.190	1	2.190	3.826	.052	.019	3.826	.495
	M_AtdAd	6.383	1	6.383	6.639	.011	.033	6.639	.727
	M_AtdBrnd	10.434	1	10.434	8.432	.004	.042	8.432	.824
	M_Crtnty	.074	1	.074	.072	.789	.000	.072	.058

	M_PI	13.069	1	13.069	6.665	.011	.033	6.665	.729
NFC_level	M_persn	.003	1	.003	.005	.941	.000	.005	.051
	M_AtdAd	.765	1	.765	.796	.374	.004	.796	.144
	M_AtdBrnd	2.526	1	2.526	2.041	.155	.010	2.041	.295
	M_Crtnty	7.007	1	7.007	6.819	.010	.034	6.819	.738
	M_PI	1.692	1	1.692	.863	.354	.004	.863	.152
Metacog_experience * NFC_level	M_persn	2.482	1	2.482	4.335	.039	.022	4.335	.545
	M_AtdAd	5.025	1	5.025	5.226	.023	.026	5.226	.624
	M_AtdBrnd	5.496	1	5.496	4.442	.036	.022	4.442	.555
	M_Crtnty	1.902	1	1.902	1.851	.175	.010	1.851	.273
	M_PI	7.306	1	7.306	3.726	.055	.019	3.726	.484
Error	M_persn	110.487	193	.572					
	M_AtdAd	185.564	193	.961					
	M_AtdBrnd	238.837	193	1.237					
	M_Crtnty	198.312	193	1.028					
	M_PI	378.451	193	1.961					
Total	M_persn	2768.000	199						
	M_AtdAd	6071.240	199						
	M_AtdBrnd	6476.400	199						
	M_Crtnty	5801.083	199						

	M_PI	5438.778	199						
Corrected Total	M_persn	152.109	198						
	M_AtdAd	277.037	198						
	M_AtdBrnd	316.139	198						
	M_Crtnty	223.886	198						
	M_PI	483.758	198						
a. R Squared = .274 (Adjusted R Squared = .255)									
b. R Squared = .330 (Adjusted R Squared = .313)									
c. R Squared = .245 (Adjusted R Squared = .225)									
d. R Squared = .114 (Adjusted R Squared = .091)									
e. R Squared = .218 (Adjusted R Squared = .197)									
f. Computed using alpha = .05									

Table 11: UNIANOVA of RA and Metacognitive Experience on Certainty

Table11-1: Tests of Between-Subjects Effects

Tests of Between-Subjects Effects						
Dependent Variable: M_Crtnty						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	37.646 ^a	5	7.529	7.872	.000	.178
Intercept	150.583	1	150.583	157.438	.000	.464
M_Invlv	.247	1	.247	.259	.612	.001
M_Fmlrty	1.400	1	1.400	1.464	.228	.008
RA_level	15.709	1	15.709	16.425	.000	.083
Metacog_experience	.140	1	.140	.147	.702	.001
RA_level * Metacog_experience	5.068	1	5.068	5.299	.022	.028
Error	174.075	182	.956			
Total	5418.000	188				
Corrected Total	211.721	187				
a. R Squared = .178 (Adjusted R Squared = .155)						

Table11-2: Descriptive Statistics

Descriptive Statistics				
Dependent Variable: M_Crnty				
RA_level	Metacog_experience	Mean	Std. Deviation	N
1	1	4.7074	1.04032	45
	2	5.0139	.98321	48
	Total	4.8656	1.01744	93
3	1	5.8333	.79791	51
	2	5.4394	1.09974	44
	Total	5.6509	.96483	95
Total	1	5.3056	1.07488	96
	2	5.2174	1.05662	92
	Total	5.2624	1.06405	188

Table 11-3: P-value of the simple t-test for the difference of estimated marginal means between different groups.

	Low RA	High RA
Between Meta_Ease and Meta_Diff	0.1482	0.0524

	Meta_Ease	Meta_Diff
Between Low RA and High RA	0.0000	0.0544

Table 12: ANOVA on imagery processing

Table 12-1: ANOVA of NFC and Metacog_Experience on Imagery processing

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	5.943 ^a	3	1.981	1.068	.364	.016
Intercept	4717.128	1	4717.128	2542.878	.000	.929
Metacog_experience	5.881	1	5.881	3.170	.077	.016
NFC_level	.053	1	.053	.028	.866	.000
Metacog_experience * NFC_level	.007	1	.007	.004	.952	.000
Error	361.732	195	1.855			
Total	5115.333	199				
Corrected Total	367.675	198				
a. R Squared = .016 (Adjusted R Squared = .001)						

Table 12-2: Descriptive Statistics

Descriptive Statistics				
Dependent Variable: M_img_Reverse				
Metacog_experience	NFC_level	Mean	Std. Deviation	N
1	1	5.0815	1.14846	45
	3	5.0370	1.47042	54
	Total	5.0572	1.32740	99
2	1	4.7246	1.33390	46
	3	4.7037	1.43433	54
	Total	4.7133	1.38212	100
Total	1	4.9011	1.25166	91
	3	4.8704	1.45535	108
	Total	4.8844	1.36270	199

Table 12-3: P-value of the simple t-test for the difference of estimated marginal means between different groups.

	Low NFC	High NFC
Between Meta_Ease and Meta_Diff	0.1746	0.2358

	Meta_Ease	Meta_Diff
Between Low NFC and High NFC	0.8662	0.94

Table 13: ANOVA on analytical processing

Table 13-1: ANOVA of NFC and Metacognitive Experience on Analytical processing

Tests of Between-Subjects Effects						
Dependent Variable: M_Anlytcl_2						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	14.127 ^a	3	4.709	6.838	.000	.095
Intercept	7107.436	1	7107.436	10320.369	.000	.981
Metacog_experience	.872	1	.872	1.266	.262	.006
NFC_level	12.970	1	12.970	18.833	.000	.088
Metacog_experience * NFC_level	.187	1	.187	.272	.603	.001
Error	134.293	195	.689			
Total	7360.500	199				
Corrected Total	148.420	198				
a. R Squared = .095 (Adjusted R Squared = .081)						

Table 13-2: Descriptive Statistics

Descriptive Statistics				
Dependent Variable: M_Anlytcl_2				
Metacog_experience	NFC_level	Mean	Std. Deviation	N
1	1	5.7778	.87617	45
	3	6.3519	.73092	54
	Total	6.0909	.84625	99
2	1	5.7065	.89179	46
	3	6.1574	.82887	54
	Total	5.9500	.88335	100
Total	1	5.7418	.87991	91
	3	6.2546	.78388	108
	Total	6.0201	.86579	199

Table 13-3: P-value of the simple t-test for the difference of estimated marginal means between different groups.

	Low NFC	High NFC
Between Meta_Ease and Meta_Diff	0.7012	0.1988

	Meta_Ease	Meta_Diff
Between Low NFC and High NFC	0.0008	0.0108

Appendix C: Main Study Questionnaire

Study 1

Thank you for participating!

This survey is to understand how consumers purchase products. It includes 1 photography of cars and 17 related questions which will take around 7 minutes. Please read the following general instructions before you begin the survey.

- **Please use a computer instead of other devices.**

- **Keep your browser window maximized.**

- Please wait until the entire image comes up on your screen.

- The collected data will be confidential and anonymous, and your personal information will not be disclosed.

- Your completion code will be on the final page.

- Please answer carefully, 2 detected question is included; if you randomly answer the questionnaire, you might not get the completion code.

If you want to participate the survey and are prepared well, please click "I Agree." If you click "I do not Agree", the survey will ended. Then, click the ">>" arrow below to start.

I Agree

I do not Agree

Today's research is about the Sedan. Before we start, please answer several questions about how much you are familiar with it.

Q1 Please choose the option below to tell how much do you know about the Sedan?

	1	2	3	4	5	6	7	
Not knowledgeable at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very knowledgeable
Not familiar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Familiar
Not experienced in using it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Experienced in using it

Q2 Please give me your evaluation of the Sedan

	1	2	3	4	5	6	7	
Relevant to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not relevant to me
Important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not important
Of concern to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Of no concern to me
Matters to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Doesn't matter to me
Involving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not involving
Means a lot to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Means nothing to me

Please imagine that you are viewing a popular magazine **Motor Trend** on the following pages, **you will be exposed to one page of it** and will be asked to give your opinion towards it.

This is a new anonymous model of sedan from a global top 10 Best Selling car Manufacturers in 2019, below is a **weekly column review** of it published in a magazine.

A Weekly Report on Motor Trend Magazine
Monday, July 05 2019



Deion Kessler's weekly column review of sedan
MODEL: ██████████ Color: Grey

It should be at the top of your list if you're considering a midsize sedan.

The new dynamic and sophisticated exterior design make it a standout in its segment.

The new GD engine series features a more compact variable-geometry turbocharger which is 30% more compact and has a new impeller and turbines that make for faster engine response and better Fuel Efficiency.

What's more, the high torsion rigidity frame gives the driver and passenger a more "solid" feel when the car is running on the road which is bumpy and has lots of potholes on it. I highly recommend it.

Q3 Please choose one of the option for each question which accurately describe your feeling towards the ads. The strength increase with the number, from 1 (not at all) to 7 (extreme amount).

	None/Not at all (1)	a tiny bit (2)	a little (3)	A moderate amount (4)	A lot (5)	A great deal (6)	Extreme amount (7)
1. How much attention did you pay to the ad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How much did you notice the information in the ad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How much did you concentrate on the information in the ad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How involved were you with the information in the ad ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. How much thought did you put into evaluating the information in the ad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Please choose the fifth option : A lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4 How **worthwhile** you think driving **the recommended model of sedan** would be to you personally as a way to do transportation?

- Extremely **worthless**
- Somewhat **worthless**
- Neither **worthless** nor **worthwhile**
- Somewhat **worthwhile**
- Extremely **worthwhile**

Q5 How **convincing** you think the ad is?

- Strongly **unconvincing**
- Somewhat **unconvincing**
- Neither **unconvincing** nor **convincing**
- Somewhat **convincing**
- Strongly **convincing**

Q6 How **effective** you think the content of the ad would be in **persuading** someone to purchase the recommended model of sedan rather than other brands of sedan?

- Not effective at all
- Slightly effective
- Moderately effective
- Very effective
- Extremely effective

Q7 How **interested** you would be in receiving more information about the recommended model of sedan?

- Not interesting at all
- Slightly interesting
- Moderately interesting
- Very interesting
- Extremely interesting

For each of the statements below, please indicate to what extent the statement is characteristic of you. If the statement is extremely uncharacteristic of you (not at all like you) please write a "1" to the left of the question; if the statement is extremely characteristic of you (very much like you) please write a "5" next to the question. Of course, a statement may be neither extremely uncharacteristic nor extremely characteristic of you; if so, please use the number in the middle of the scale that describes the best fit. Please keep the following scale in mind as you rate each of the statements below: **1 = extremely uncharacteristic; 2 = somewhat uncharacteristic; 3 = uncertain; 4 = somewhat characteristic; 5 = extremely characteristic.**

Q8 I would prefer complex to simple problems.

- 1 (Extremely **Un**characteristic)
- 2 (Somewhat **Un**characteristic)
- 3 (Uncertain)
- 4 (Somewhat Characteristic)
- 5(Extremely Characteristic)

Q9 I like to have the responsibility of handling a situation that requires a lot of thinking.

- 1 (Extremely **U**ncharacteristic)
- 2 (Somewhat **U**ncharacteristic)
- 3 (Uncertain)
- 4 (Somewhat Characteristic)
- 5(Extremely Characteristic)

Q10 Thinking is not my idea of fun.

- 1 (Extremely **U**ncharacteristic)
- 2 (Somewhat **U**ncharacteristic)
- 3 (Uncertain)
- 4 (Somewhat Characteristic)
- 5(Extremely Characteristic)

Q11 I would rather do something that requires little thought than something that is sure to challenge my thinking abilities

- 1 (Extremely **U**ncharacteristic)
- 2 (Somewhat **U**ncharacteristic)
- 3 (Uncertain)
- 4 (Somewhat Characteristic)
- 5(Extremely Characteristic)

Q12 I really enjoy a task that involves coming up with new solutions to problems.

- 1 (Extremely **U**ncharacteristic)
- 2 (Somewhat **U**ncharacteristic)

- 3 (Uncertain)
- 4 (Somewhat Characteristic)
- 5(Extremely Characteristic)

Q13 I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.

- 1 (Extremely **Un**characteristic)
- 2 (Somewhat **Un**characteristic)
- 3 (Uncertain)
- 4 (Somewhat Characteristic)
- 5(Extremely Characteristic)

Q14 What's your gender?

- Male
- Female

Q15 How old are you (please only enter specific number)?

Q16 Please specify your ethnicity.

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Hispanic or Latino

other

Q17 What is the highest degree or level of school you have completed? If current enrolled, highest degree received.

- No schooling completed
- Nursery school to 8th grade
- Some high school, no diploma
- High school graduate, diploma or the equivalent (for example: GED)
- Some college credit, no degree
- Trade/Technical/Vocational training
- College's Degree
- Bachelor's Degree
- Master's Degree
- PHD's or higher Degree

Q18

Congratulations! You finish it !

Here is your ID: `§{e://Field/Ramdom%20ID}`

Copy this value to paste into M-turk

When you have copied this ID, please **click** the next button to submit your survey

Attention: Click the Next button, or your response may not be submitted and the ID will be invalid!

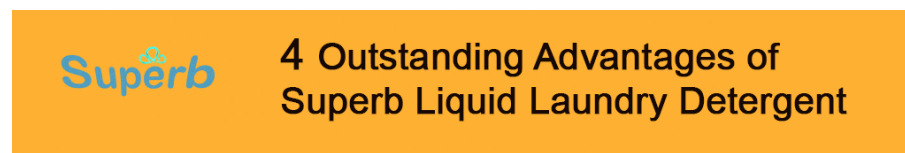
Study 2

Q1-Q6: NFC distinguish (The same as Q8-Q13 in the study 1)

Today's research is about the Laundry Detergent. Before we start, please answer several questions about how much you are familiar with it.

Q7-Q8: Familiarity and Involvement (The same as Q1 and Q2 in the study 1)

Please imagine that you are viewing a magazine you like and here comes an ad of a new brand of liquid laundry detergent: Superb. On the following pages, you will be exposed to that ad and will be asked to give your opinion towards it.



The advertisement header features the Superb logo on the left, which includes a small leaf icon above the 'b'. To the right of the logo is the text "4 Outstanding Advantages of Superb Liquid Laundry Detergent" in a bold, black font, all set against a solid orange background.

The 1st plant-based detergent obtaining USDA Certification with 91% of biobased content;

With 6x cleaning power compared with the leading bargain liquid detergent, fights stains and odors with higher efficiency;

Helps your fabrics look brighter and whiter with the newest technology, by reviving dingy fabrics and preventing the dirty wash water from soaking back into them;

With added scent pearls, refreshing Breeze scent infuses your clothes with floral, fruity and woody notes for a 3x longer-lasting, clean scent vs other popular brands.



*Superb VS. Leading bargain liquid detergent brand, based variant

Q9 Please choose one of the option for each question which accurately describe your feeling towards the ads. The strength increase with the number, from 1 (not at all) to 7 (extreme amount).

	None/Not at all (1)	a tiny bit (2)	a little (3)	A moderate amount (4)	A lot (5)	A great deal (6)	Extreme amount (7)
1. How much attention did you pay to the ad ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How much did you notice the information in the ad ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How much did you concentrate on the information in the ad ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How involved were you with the information in the ad ?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. How much thought did you put into evaluating the information in the ad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Please choose the fifth option	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 How **worthwhile** you think **trying to use** Superb detergent would be to you personally as a way to do laundry?

- Extremely **worthless**
- Somewhat **worthless**
- Neither **worthless** nor **worthwhile**
- Somewhat **worthwhile**
- Extremely **worthwhile**

Q11 How **convincing** you think the ad is?

- Strongly **unconvincing**
- Somewhat **unconvincing**
- Neither **unconvincing** nor **convincing**
- Somewhat **convincing**
- Strongly **convincing**

Q12 How **effective** you think the content of the ad would be in **persuading** someone to purchase Superb detergent rather than other brands of detergents?

- Not effective at all
- Slightly effective
- Moderately effective
- Very effective
- Extremely effective

Q13 How **interested** you would be in receiving more information about Superb laundry detergent?

- Not interesting at all
- Slightly interesting
- Moderately interesting
- Very interesting
- Extremely interesting

Q14

From your point of view, did the **Ads** for 'Superb Detergent' **make you feel**:

(The closer to the Endpoint, the stronger feeling towards the description)

	1	2	3	4	5	6	7	
Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good
Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant
Unfavorable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Favorable
Worthless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Valuable
Not interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting

Q15 Please describe your overall **feelings** about the **Brand** described in the ads you just read

	1	2	3	4	5	6	7	
Unappealing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Appealing
Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good
Unpleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pleasant
Unfavorable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Favorable
Unlikable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Likable

Q16 For each of the statements below, please indicate to what extent that you agree with it.

	Not At All Certain (1)	(2)	(3)	Moderate amount certain (4)	(5)	(6)	Extremely Certain (7)
How certain are you that you know what your true attitude on this brand really is?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How certain are you that the attitude you just expressed toward the brand 'Superb' really reflects your true feelings and thoughts?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How certain are you that your attitude toward the brand is the correct attitude to have?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How certain are you that of all the possible attitudes one might have toward the brand, your attitude **reflects the right way** to think and feel about it?

Here please choose the option whose value is equal to '3+4'

Q17 For each of the statements below, please indicate to what extent that you agree with it.

	To a very small extent (1)	(2)	(3)	To a moderate extent (4)	(5)	(6)	To a great extent (7)
To what extent is your true attitude clear in your mind about the brand?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To what extent do you think other people should have the same attitude as you do on this brand of detergent?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please choose the options to **describe to what extent** that you **engaged in the behaviors** below when you viewed and evaluated the ads

(The **larger** of the value of option, the **stronger extent** of the behaviors you engaged in).

Q18 I tried to form a picture of the product

- Not very much (1)
- (2)
- (3)
- Moderate amount (4)
- (5)
- (6)
- To a great deal (7)

Q19 I tried to use as much information about the product features as possible to evaluate it

- Strongly disagree (1)
- (2)
- (3)
- Neither agree nor disagree(4)
- (5)
- (6)
- Strongly agree(7)

Q20 I imagined myself using the detergent in the ad to do laundry

- Not very much (1)
- (2)
- (3)
- Moderate amount (4)
- (5)
- (6)
- To a great deal (7)

Q21 I evaluated the laundry detergent feature by feature rather than evaluating it as a whole

- Strongly disagree (1)
- (2)
- (3)
- Neither agree nor disagree(4)
- (5)

- (6)
- Strongly agree(7)

Q22 My evaluation were based on personal impressions and feelings

- Not very much (1)
- (2)
- (3)
- Moderate amount (4)
- (5)
- (6)
- To a great deal (7)

Q23 My evaluations were based on careful thinking and reasoning.

- Strongly disagree (1)
- (2)
- (3)
- Neither agree nor disagree(4)
- (5)
- (6)
- Strongly agree(7)

Assuming the product are available in your area, please choose the option below to describe your feeling

Q24 How **likely** are you to **buy** the product of '**Superb**' in the ads the next time you shop for the laundry detergent?

- Extremely unlikely
- Moderately unlikely
- Slightly unlikely
- Neither likely nor unlikely
- Slightly likely
- Moderately likely
- Extremely likely

Q25 How **likely** are you to **consider** the product of '**Superb**' the next time you shop for the laundry detergent?

- Extremely unlikely
- Moderately unlikely
- Slightly unlikely
- Neither likely nor unlikely
- Slightly likely
- Moderately likely
- Extremely likely

Q26 How **likely** are you to **recommend** to someone else the '**Superb**' laundry detergent?

- Extremely unlikely
- Moderately unlikely
- Slightly unlikely
- Neither likely nor unlikely
- Slightly likely
- Moderately likely
- Extremely likely

Q27 –Q 32 Demographic information collection, the same as those in Study 1.