THE EFFECTIVENESS OF ADVERTISING AMONG MEDIA MULTITASKERS:
EFFECTS OF ENDORSER ATTRACTIVENESS AND ARGUMENT STRENGTH

BY

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THESIS

Submitted in partial fulfillment of the requirements
for the degree of Master of Science in Advertising
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2014

Urbana, Illinois

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ABSTRACT

In recent years, the phenomenon of media multitasking—using more than one medium at a time—has grown remarkably. However, we do not know much about how media multitasking affects the public's responses to advertising. The purpose of this study is to investigate how people respond to argument strength and endorser attractiveness variables in advertising when attending to multiple media simultaneously. In particular, this study examines how people—varying in the extent to which they chronically engage in media multitasking—attend to substantive issues (i.e., argument strength) and peripheral information (i.e., endorser attractiveness) in advertisements when exposed to a media multitasking environment. In this experiment, I first measure the level of media multitasking and then manipulate the quality of argument strength and endorser attractiveness, then measure cognitive, affective, and behavioral responses, along with content comprehension level. The analyses reveal that participants' level of media multitasking is positively correlated with free recall for product category and the critical brand. In addition, participants with higher media multitasking propensity have better overall and affective attitudes toward the brand following exposure to ads with weak arguments, while participants with lower media multitasking propensity have better overall and affective attitudes following exposure to ads with strong arguments.

To Father, Mother, and Brother

Words cannot express how much I love you all.

ACKNOWLEDGMENTS

This thesis would not have been possible without the support of many people. Foremost, I would like to express my deepest gratitude to my advisor Patrick Vargas for his patience, caring, and continuous support of my M.S. study. I greatly appreciate your willingness to listen and provide me with an excellent atmosphere for doing research. I would also like to thank Brittany Duff and Chang-Dae Ham for serving on my thesis committee, and for their encouragement and insightful comments.

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CHAPTER 1

INTRODUCTION

1.1 What is Media Multitasking?

With the advancement of new technologies such as smartphones and tablets, people are increasingly choosing to multitask while consuming media. Such multitasking has been on the rise due to the increased availability of digital devices, which allows people to switch frequently through media, such as instant messaging while watching television, or checking email while downloading files (Foehr 2006). As of 1994, web users would only tolerate 10 seconds, at the most, for computer response and would switch their attention to other tasks in the face of longer delays (Nielsen 1994). According to a recent report verified by The Associated Press, people had an attention span of 8 seconds in 2013, down from 12 seconds in 2000 (National Center for Biotechnology Information 2014). These other tasks can be non-media activities (e.g., eating), or attention to different types of media (e.g., text-messaging while web-surfing; Jeong and Fishbein 2007). The latter pattern of media behavior, so-called media multitasking, is often defined as simultaneous usage of multiple media at a single point in time (Pilotta, Schultz, Drenik, and Rist 2004; Foehr 2006). More specifically, media multitasking includes both cases of engaging in two or more media simultaneously (e.g., reading a magazine and watching TV) and converging media activities by means of the same medium (e.g., reading an online article and watching video content on the same computer; Koolstra, Ritterfeld, and Vorderer 2009).

1.2 Growing Effects of Media Multitasking

The phenomenon of media multitasking is growing fast, with close to 40% of people using their tablets or smartphones while watching TV at least once a day, 62% doing so multiple times a week, and more than 84% at least once a month (Nielsen's Cross Platform Report 2012). In addition, this type of media consumption activity is popular across generations: more than 53% of children/adolescents, aged 8 to 18 years, reported that they media multitask "most of the time" or "some of the time" (Foehr 2006) while adults spend almost 24% of their media time using multiple media concurrently (Papper, Holmes, and Popovich 2004). Using the Internet and watching television seem to be the most popular combination of media multitasking for both young people and adults (Papper et al. 2004; Foehr 2006; Rideout, Foehr, and Roberts 2010).

While today's media consumption habits have changed substantially, little academic research has explored this trend of simultaneous media use. In this paper, I investigated the effects of media multitasking on consumer perceptions of advertising and on consumer behavior. Because media multitasking is related to the psychological processes of allocating attention, switching tasks, and retrieving information from memory, it almost certainly affects advertising effectiveness. Media multitasking may offer more communication channels to reach out to consumers, which is a great opportunity for advertisers. On the other hand, this phenomenon may also present a challenge to advertisers in that media multitasking may influence consumers' cognitive and affective responses towards commercial content. Therefore, it is important to examine the effects of simultaneous media exposure on advertising effectiveness.

CHAPTER 2

LITERATURE REVIEW

2.1 Media Multitasking and Advertising

Even with the growing influence of media multitasking, the underlying mechanisms of how media multitasking influences advertising processing have been underexplored. Prior research on media multitasking has focused on either positive or negative effects on information comprehension (Lin, Robertson, and Lee 2009; Jeong and Hwang 2012), but only a few studies have investigated the field in the context of advertising. An exploratory, qualitative study examined the self-reported impact of media multitasking on consumer motivation, ability, and opportunity when processing commercial content (Bardhi, Rohm, and Sultan 2010). In the study, participants reported both positive and negative aspects of their media multitasking experiences. With respect to advertising, the young consumers felt in control of their media consumption as they chose which media channel they would attend to commercial content. On the other hand, they found media multitasking inefficient, which implies a smaller amount of cognitive resources available to process advertising. Other researchers examined the effectiveness of simultaneous exposure to cross-media campaigns (i.e., combining online and radio advertising; Voorveld 2011). The internet-radio combination generated more positive outcomes for affective and behavioral aspects compared to exposure via a single medium. The participants in the internet-radio condition had more positive brand attitudes, changed their brand attitudes in a more positive way, and had higher purchase intentions. Although it is not technically media multitasking, an empirical study demonstrated that

the simultaneous presentation of television programming and advertising (i.e., the use of split screen) is more advantageous for relatively weak messages than for relatively strong messages (Chowdhury, Finn, and Olsen 2007). That is, this simultaneous presentation format presents a distraction to advertising processing and makes weak ad messages more persuasive by inhibiting the generation of counterarguments.

2.2 Media Multitaskers and Information Processing

With respect to information processing in a media multitasking environment, people are more likely to be distracted by different media streams. They have to divide their attention to process multiple media contents, which inevitably causes information loss compared to a non-multitasking environment. This is because one cannot infinitely process infinite amounts of information, thereby resulting in selective choice of what pieces of information to attend to (Kanfer and Ackerman 1989; Lang 2000). A great deal of research on media multitasking has relied on this limited-capacity approach to understand how multitasking affects information processing (Lang 2000; Chowdhury et al. 2007; Bardhi et al. 2010; Jeong, Hwang, and Fishbein 2010; Voorveld 2011; Jeong and Hwang 2012; Lui and Wong 2012; Srivastava 2013).

Although media multitasking is increasingly common, not everyone does it. Even some young people spend little or no time media multitasking: 19% of adolescents reported they never use more than one medium at a time. Then what type of person tends to engage in media multitasking? People who frequently multitask with media tend to be sensation seekers (i.e., like risk and adventure), girls (rather than boys), have a computer (i.e., watch television programs on it), and live in highly TV-oriented households (Foehr

2006). Moreover, heavy media multitaskers (hereafter HMMs) and light media multitaskers (hereafter LMMs) process information differently (Ophir, Nass, and Wagner 2009).

HMMs are much worse than LMMs at filtering information, managing short-term memory, and switching tasks. That is, HMMs are less efficient at attending to the relevant versus irrelevant information, suppressing irrelevant representations in memory and switching from one task to another. This is because HMMs have a propensity for bottom-up attentional control; they tend to take in all the information from their environment without priority. LMMs, on the other hand, have a propensity for top-down attentional control; they are better able to focus on a primary task without being affected by distractors. In other words, HMMs are more breadth-biased, while LMMs have more focused cognitive control. All in all, HMMs are more easily influenced by multiple media inputs than LMMs due to their inability to filter out both external stimuli and representations in memory.

However, HMMs' poorer ability to suppress distractors does not necessarily mean that they are simply inefficient and have a general deficit in every task. They may treat different sources of information in a more egalitarian manner because seemingly irrelevant information at a single point in time may be useful later (Lin 2009; Cain and Mitroff 2011). In fact, some studies have found a positive correlation between media multitasking level and multisensory integration; HMMs were better at integrating information from different modalities (Lui and Wong 2012). Moreover, advertising utility was found to be a predictor of media multitasking: the more people perceive advertising as useful the greater their propensity for media multitasking behavior (Duff, Yoon,

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Wang, and Anghelcev 2014). This suggests that HMMs may be more attentive to task-unrelated information such as advertising that can be intentionally ignored by LMMs. In this way, media multitaskers' varying motivation for viewing irrelevant information may have different influences on advertising effectiveness. HMMs, who are breadth-biased, may be more likely to carefully attend to and process advertising while LMMs tend to inhibit attention to, and processing of, advertising when it is deemed irrelevant to their tasks and goals.

According to the elaboration likelihood model (ELM; Petty and Cacioppo 1986), people are more likely to process information carefully when they are both motivated and able to do so; however, people tend to be influenced by more peripheral information (e.g., how attractive an endorser is) when they are less motivated and more distracted. For example, consumers are more likely to make an effort to process an advertising message carefully when they have plenty of time to think about the message and when the commercial is personally relevant to their interests. If they are either unwilling or unable to carefully process the information in the ad, they are less likely to be swayed by substantive features in the ad and more likely to be susceptible to peripheral cues such as a pleasant image or happy music in the background. This is because such nonsubstantive cues can be processed easily and can also provide shortcuts to making decisions with minimal cognitive effort (Shavitt, Swan, Lowrey, and Wänke 1994).

Moreover, the ELM can be reconceptualized in terms of a 2 x 2 factorial design. The degree of cognitive elaboration that people engage in, although conceptualized as a continuum in the Model, can be manipulated as a two-level independent variable: central vs. peripheral processing. Participants can be shown ads that would be more or less

persuasive under high cognitive elaboration, or central route processing, i.e., ads featuring strong or weak arguments. They could also be shown ads that would be more or less persuasive under low cognitive elaboration, i.e., ads featuring an attractive or unattractive source. So the first independent variable in this 2 x 2 factorial design could be an ad feature: arguments vs. attractiveness. The other two-level independent variable would be the quality of the ads; strong arguments and attractive sources make for better ads, whereas weak arguments and unattractive sources make for worse ads. Thus, the 2 x 2 factorial design of this slight reconceptualization of the ELM is ad feature (arguments vs. attractiveness) by ad strength (better vs. worse).

The limited capacity and elaboration likelihood models have significant implications for today's heavy media environment where consumers are increasingly becoming multitaskers. Both theories imply that multitasking inevitably results in reduced attention to advertising content. Although it is still unclear to what extent consumers allocate more or fewer resources and store information, these theories can provide the groundwork for understanding how consumers respond to advertising stimuli in a media multitasking environment.

2.3 Distraction and Persuasion

Previous multitasking research has examined the disruptive impact of multitasking on information processing, especially in terms of comprehension and recall (Armstrong and Chung 2000). On the other hand, other studies suggest that distraction may increase persuasion by reducing counter-argument production (Baron, Baron, and Miller 1973; Festinger and Maccoby 1964; Chowdhury et al. 2007; Jeong and Hwang

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2012). Media multitasking may also increase media persuasion effects by allowing message content to slip away from viewers' scrutiny with less attention being paid (Collins 2008). Thus, it is important to understand how distraction influences message processing in order to provide some insight into the role of media multitasking on persuasion.

Distraction may either enhance or reduce persuasion (i.e., agreement in terms of attitudes) under different circumstances (Petty, Wells, and Brock 1976). Distraction effects can cause variability in consumers' cognitive responses elicited by a persuasive message (i.e., supporting arguments or counterarguments). A strong message predominantly produces favorable thoughts and distraction may inhibit supporting cognitive elaboration resulting in a lower persuasive impact. On the other hand, for a weak message where the dominant cognitive response is disagreement, distraction may enhance persuasion by weakening the counterargument process. In short, distraction can enhance persuasion for a weak message by suppressing counterarguments or decrease persuasion for a strong message by inhibiting supportive arguments. These distraction effects suggest that media multitasking may have a differential influence on strong and weak arguments in advertising.

With respect to the impact of media multitasking on message persuasion, in one study a media multitasking group self-reported and actually performed worse at comprehending and counterarguing the persuasive message (Jeong and Hwang 2012). The results suggest that media multitasking can decrease persuasion by inhibiting comprehension, but also can increase persuasion by reducing counterarguing. In case of the influence of distraction (i.e., the simultaneous presentation of advertising and

television programming in the split-screen) on advertising, viewers generated fewer

supporting arguments and less favorable brand evaluations in response to a relatively

strong advertising message, but not for the weak one. This indicates that distraction

elicited by the simultaneous presentation is more beneficial for relatively weak messages,

and further implies that such a distracting format is more suitable for ads that contain

peripheral cues such as an attractive endorser than for ads that require elaborative

cognitive effort (Chowdhury et al. 2007).

2.4 Research Questions

The present study has two important research questions. The first question is

whether there is a relationship between people's media multitasking level and their

responses to advertisements. Research on media multitaskers found that HMMs are more

susceptible to irrelevant stimuli than LMMs due to the formers' inability to filter out

information. People who report frequently engaging in media multitasking may tend to be

more attentive to advertising information (which can be considered irrelevant in a dual

tasking environment where people are, say, reading an article while watching television).

Because HMMs are more motivated to attend to advertising, I predict the following:

Hypothesis 1: Participants' propensity for media multitasking will be positively

correlated with their memory (both recall and recognition) for advertisements in a media

multitasking environment.

The second question is how media multitaskers respond differently to variables in advertising such as argument strength and endorser attractiveness. As discussed above, HMMs have more motivation and ability to process advertising messages compared to LMMs. According to the ELM, argument strength manipulations in ads can be more or less persuasive when people are more motivated and able to process information, while endorser attractiveness manipulations in ads can be more or less persuasive when people are less motivated and able to process information. Therefore, following the ELM it is possible to predict that participants with a higher propensity for media multitasking will tend to have better attitudinal responses (including affective, cognitive, and behavioral [i.e., purchase intention] components) to an ad featuring strong arguments than to an ad featuring weak arguments. This is because HMMs tend to process the ads more centrally due to their higher motivation and ability to process advertising/irrelevant information. And if HMMs are processing advertising carefully, they should also show no effect of endorser attractiveness. However, participants with a lower propensity for media multitasking will tend to have better attitudinal responses to an attractive endorser ad than to an unattractive endorser ad while showing no effect of argument strength manipulations. This is because LMMs are better at attending to the primary task, and should be more likely to process the ads peripherally (if at all). This pattern of results is conceptually identical to Petty, Cacioppo, and Schuman (1983), and can be seen in Figure 1: ELM-based hypotheses. More formally, I suggest a series of hypotheses following predictions that can be made based on the ELM, and MMI serving as a measure of participants' motivation and ability to process irrelevant advertising information:

Hypothesis 2a: There will be a main effect of ad quality on affective and cognitive attitudes, as well as behavioral intentions, such that better ads (strong arguments, attractive endorser) will elicit more positive responses than worse ads (weak arguments, unattractive endorser).

Hypothesis 3a: There will be a three-way interaction among ad quality, ad feature, and MMI on affective and cognitive attitudes, as well as behavioral intentions. This three-way interaction can be decomposed into two different two-way interactions: First, among participants who saw the argument strength manipulations, HMMs will respond positively to strong arguments, and negatively to weak arguments, but LMMs will not differentiate among strong and weak arguments (see top half of Figure 1). Second, among participants who saw the endorser attractiveness manipulations, LMMs will respond positively to the attractive endorser, and negatively to the unattractive endorser, but HMMs will not differentiate among attractive and unattractive endorsers (see bottom half of Figure 1).

However, these ELM-based hypotheses may not hold in a media multitasking environment where people are under cognitive load. Participants in the present study were exposed to a cognitively demanding environment where they were asked to perform media multitasking, reading a 3000 word article excerpted from *The New Yorker* magazine (Gladwell 2002) and watching a 12 minute video clip from a Disney situation comedy at the same time. It is possible that neither HMMs nor LMMs will be able to process information carefully, especially when the information (i.e., advertising) is not

related to their primary goals. In this case, an ELM with cognitive load-based set of hypotheses may be proposed. If participants are under too much cognitive load, neither HMMs nor LMMs will be able to process information carefully, despite HMMs' higher motivation to acquire information, so no one will show a differential attitudinal response in the argument strength conditions. However, because HMMs are motivated to attend to advertising they may be susceptible to peripheral cues, such as endorser attractiveness, that can affect attitudes in the absence of cognitive elaboration. LMMs, on the other hand, should be better at filtering out advertisements, and should therefore show no attitudinal effect due to the endorser attractiveness manipulations. This predicted pattern of results can be seen in Figure 2: ELM and cognitive load-based hypotheses. More formally, I suggest a series of alternate, competing hypotheses following predictions that can be made based on the ELM and cognitive load brought on by a multitasking environment:

Hypothesis 2b: There will be a (marginal) main effect of ad quality on affective and cognitive attitudes, as well as behavioral intentions, such that better ads (strong arguments, attractive endorser) will elicit more positive responses than worse ads (weak arguments, unattractive endorser).

Hypothesis 3b: There will be a three-way interaction among ad quality, ad feature, and MMI on affective and cognitive attitudes, as well as behavioral intentions. This three-way interaction can be decomposed into two different two-way interactions: First, among participants who saw the argument strength manipulations, HMMs and LMMs

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will show no effect of the manipulations (see top half of Figure 2). Second, among

participants who saw the endorser attractiveness manipulations, HMMs will respond

positively to the attractive endorser, and negatively to the unattractive endorser, but

LMMs will not differentiate among attractive and unattractive endorsers (see bottom half
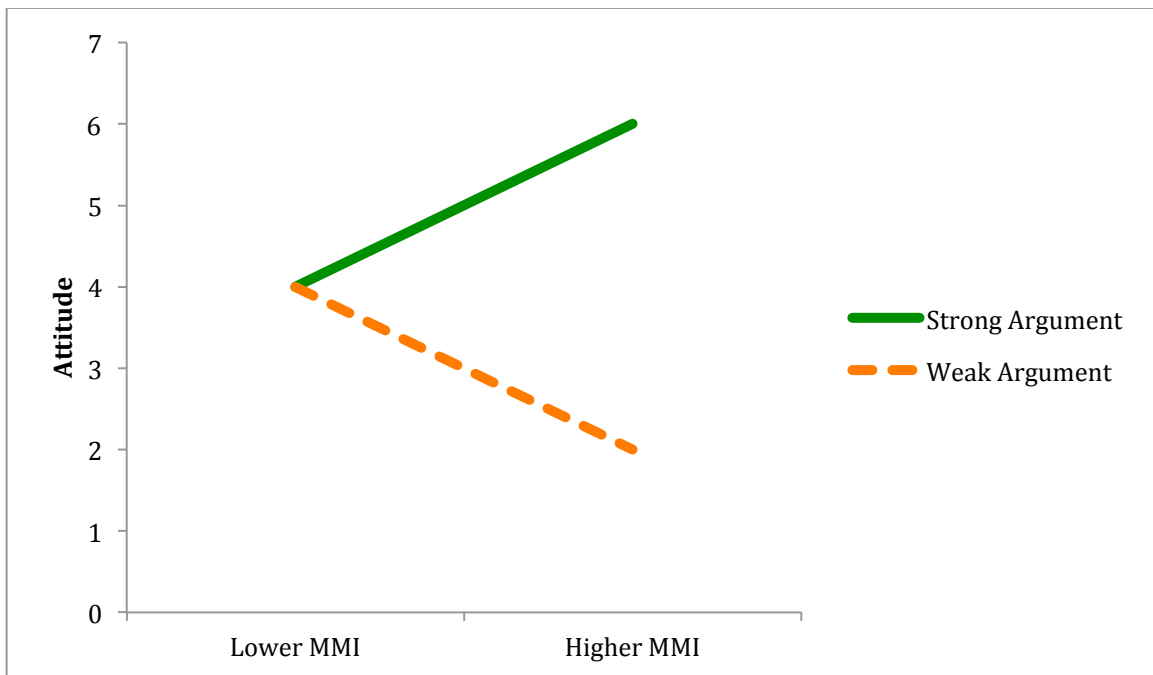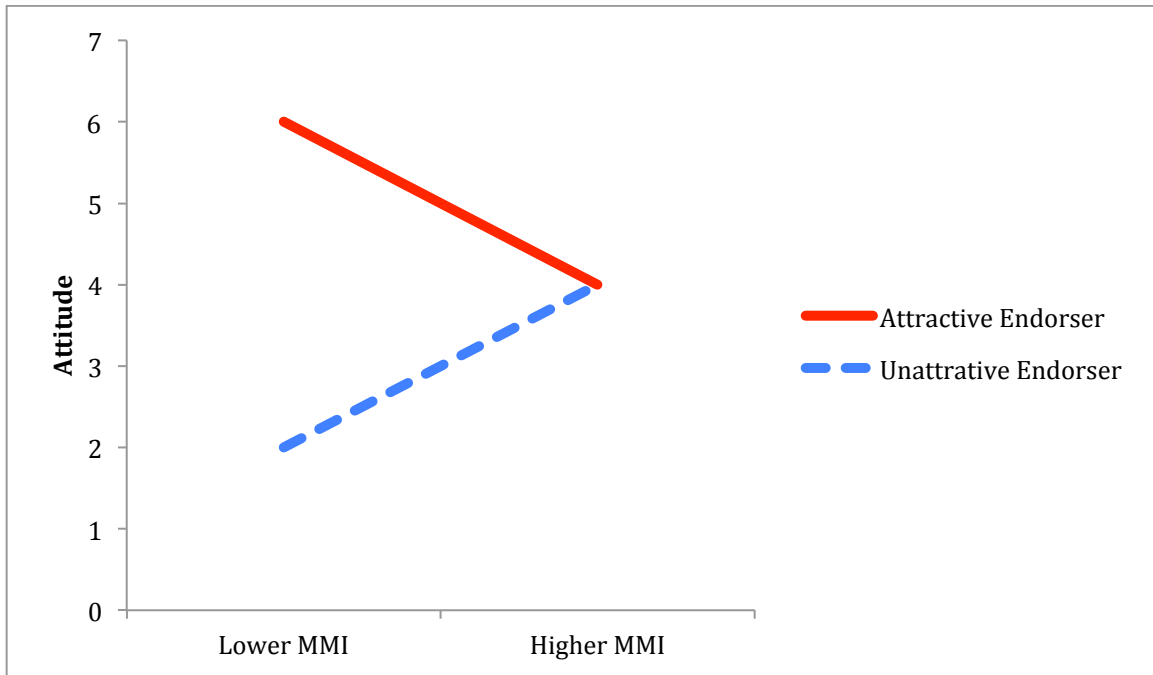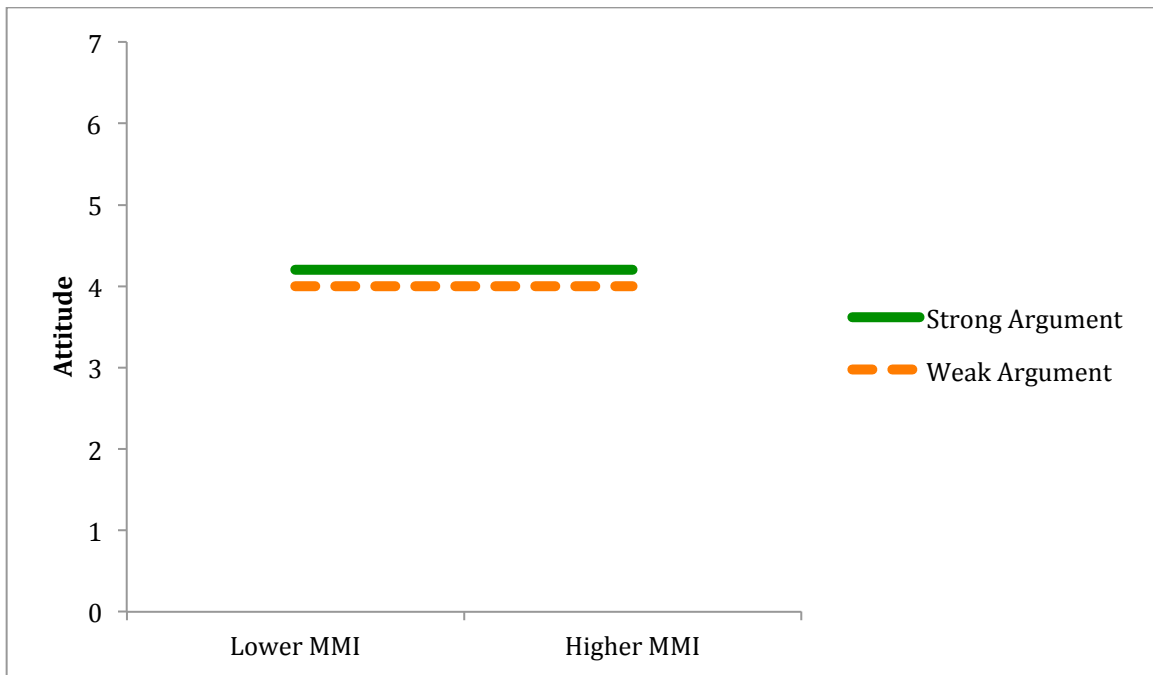
of Figure 2).

Figure 1. ELM-based hypotheses

Figure 2. ELM and cognitive load-based hypotheses
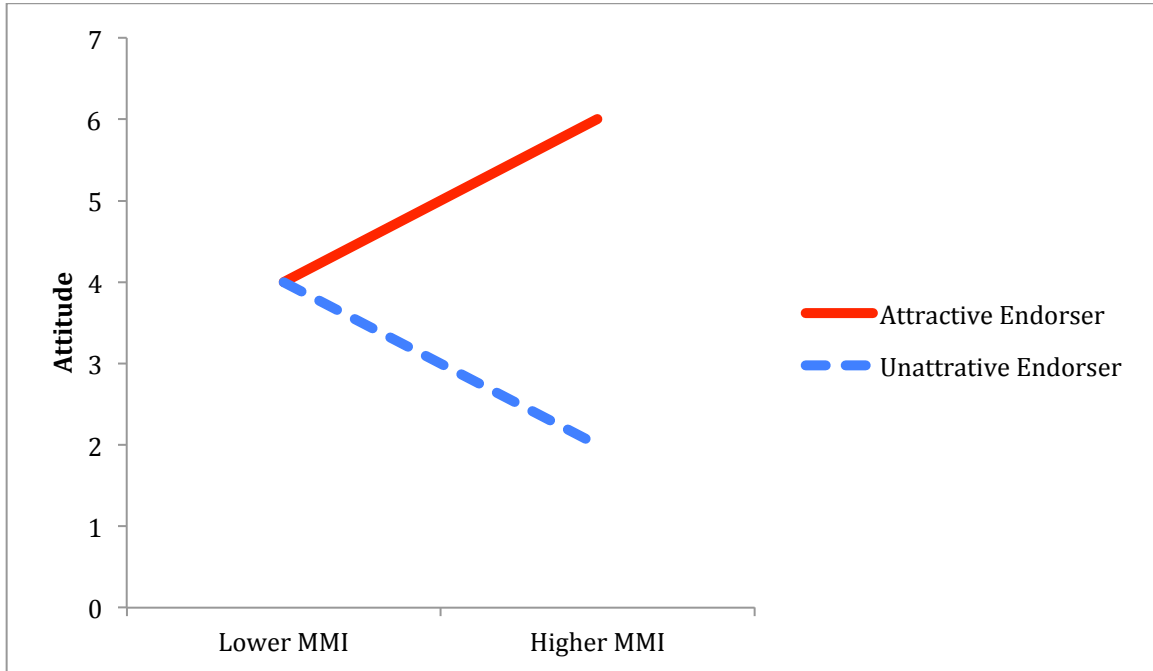
CHAPTER 3

METHODOLOGY

3.1 Design

In this experiment I first measured participants' level of media multitasking and then manipulated the quality of argument strength and endorser attractiveness; I then measured cognitive, affective, and behavioral responses, along with content comprehension level. This study is a 2 (ad feature: argument strength vs. endorser attractiveness) x 2 (ad quality: better vs. worse) between subjects factorial design with a measured, continuous predictor variable, participants' level of media multitasking (see Table 1). The participants' media multitasking level was treated as a continuous variable representing individual differences. The dichotomous independent variables included ad features (i.e., argument strength: strong and weak argument ad vs. endorser attractiveness: attractive and unattractive endorser ad) and quality of ads (i.e., better condition: strong argument and attractive endorser ad vs. worse condition: weak argument and unattractive endorser ad). There were three dependent variables including memory for the ads (both recall and recognition measures), attitudes (overall attitude along with affective and cognitive attitude), and purchase intention.

3.2 Participants

Two hundred and fifty two undergraduates in an Advertising department at a large Midwestern university participated in exchange for extra credits. First, they filled out a questionnaire about their media use (i.e., the Media Multitasking Index, Ophir et al.,

2009; see Appendix A), which was administered online. Once students had completed the

online survey, they were invited to participate in the experimental portion of the study. A

total of 213 students agreed to participate in the onsite experiment. Since media

multitasking is a cognitively high-demand activity and language is an important variable,

41 non-native participants were excluded in data analysis. I also excluded three

participants who had already seen the critical brand of toothpaste used in the study

(Marvis) prior to the experiment, as well as three outliers who took extended periods of

time to complete the MMI online. Eight participants who reported previously seeing the

video content were also excluded. No participant had read the article before. 158 usable

respondents remained in the data set. One hundred and twenty (75.9 %) were female and

38 (24.1%) were male participants. They averaged 19.7 years old, ranging from 17 to 21

($SD = 0.98$).

3.3 Procedure

Participants were randomly assigned to one of the four experimental conditions.

When they arrived at the computer lab they were seated at headset-enabled individual

computers where they could view the experimental stimuli. While seated at the computer

participants read an ''online'' magazine article and watched a video on the same screen.

The screen size was big enough (21.5-inch display) to present both the two-page display

of the magazine and the video content. As a cover story, participants were told that the

study was to see to what extent they could perform media multitasking. They were asked

to read the online magazine and watch the video clip at the same time, and were informed

that there would be some questions related to the tasks afterwards. The video was 12

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minutes long and the reading material was informally pretested to take about the same amount of time to read. After this multitasking exercise, the participants filled out a questionnaire of dependent measures, including questions about reading and video comprehension, advertisements in the magazine, and other demographic information.

3.4 Experimental Stimuli

The media multitasking tasks included reading an online magazine article, *The Talent Myth*, by Malcolm Gladwell (2002), excerpted from *The New Yorker* magazine and viewing an edited TV episode from *Good Luck Charlie, It's Christmas!* by Disney (2011). The online magazine was slightly modified (cut short) and the print advertisements were created for this experiment (see Appendix B). There were four experimental stimuli, all of them ads for the European toothpaste brand Marvis. This critical brand was chosen for its product package design; it is in English yet unfamiliar to American consumers (as noted earlier, only three out of 175 participants had previously seen the brand). Four print advertisements for the toothpaste brand Marvis were manipulated based on ad feature (i.e., argument strength and endorser attractiveness) and ad quality (i.e., better ads and worse ads).

Two pretests were conducted to evaluate the level of argument quality and endorser attractiveness in the Marvis advertisements. In order to minimize confounding effects between argument valence and argument strength, both the strong argument ad and the weak argument ad have the same product attributes and features with varying degrees of argument strengths (Areni and Lutz 1988; Chowdhury et al. 2007). With respect to argument strength, the attributes of the toothpaste varied by country of origin

(i.e., Italy vs. England), cleaning (i.e., without any gritty residue vs. with only a little gritty residue), freshening (i.e., fresh for all day long vs. fresh for hours), packaging (i.e., 8 different colors in 4 oz. vs. 4 different colors in 2.8 oz.), comparison (i.e., more than any other brand vs. just as other brand), tradition (i.e., the 50th anniversary vs. the 5th anniversary), discount (i.e., buy one get one free vs. buy one and get one five percent off), and safety (i.e., safe ingredients approved by FDA vs. some ingredients approved by FDA). In the same line of reasoning, only the level of endorser attractiveness was manipulated while keeping other features constant (i.e., the message of both attractive endorser ad and unattractive endorser ad was the same).

Three print advertisements were included in the magazine: one of the four experimental stimuli types (strong argument ad, weak argument ad, attractive endorser ad, and unattractive endorser ad; see Appendix C and D) and two filler ads (i.e., a cat food brand, Felix, and a coffee beverage, TOP; see Appendix E). The products used in the filler ads were also foreign brands from England and Korea, respectively. Regarding familiarity with the task materials, only six participants had seen the TV episode and none had read the article before.

3.5 Measures

3.5.1 Media Multitasking Level

The media multitasking level was measured through a self-report questionnaire, the Media Multitasking Index (MMI; Ophir et al. 2009). The MMI, administered online, assesses respondents' use of twelve different media: print media, television, computer video, music, non-musical audio, video games, telephone, text messaging (SMS), instant

messaging, web surfing, e-mail, and other computer applications. Respondents were asked to type in the number of hours per week they use each medium and how frequently they use the primary medium along with other media at the same time (i.e., "Most of the time," "Some of the time," "A little of the time," or "Never"). The same formula developed by Ophir et al. (2009) was used to calculate a media multitasking index by multiplying the number of hours per week spent using each of 11 primary mediums with the number of other media typically used while using the primary medium. Response options were weighted as follows: "Most of the time" with a score of 1, "Some of the time" with a score of 0.67, "A little of the time" with a score of 0.33, and "Never" with a score of 0. The product was then divided by the sum of total hours spent per week with all primary media.

3.5.2 Content Comprehension

After the multitasking portion of the study, participants were first asked to answer reading and video comprehension questions. A total of 12 multiple-choice questions were developed, six each for the magazine article and the TV episode. In order to assess better the participants' understanding on the materials, the comprehension questions were generated based on Bloom's Taxonomy: two of six questions were basic knowledge level, two were intermediate, and two were in-depth analysis level (Bloom 1956; Lin et al. 2009). For the reading and video material, basic knowledge level questions assessed the basic information that can be obtained just by reading the article (e.g., "Who consulted Enron?") and watching the video clip (e.g., "What did Dad buy?"). The intermediate level questions required participants to understand the meaning of concepts

and content: "Which of the following best describes what Enron did based on 'the talent mind-set'?" for the reading material and "What seems to be the most important Christmas tradition to Mom?" for the video content. The in-depth analysis level questions measured participants' ability to integrate information and further to make inferences: "Given what you read, which of the following statements is the most probable?" for the article and "Why are Mom and Dad so on edge?" for the video clip (see Appendix F for complete materials).

3.5.3 Cognitive Measures

For cognitive responses, free recall, aided recall, and cued-recognition were measured (Petty, Cacioppo, and Schumann 1983; Voorveld 2011; see Appendix G). Free recall was measured with an open-ended question asking participants to list all of the product categories that were advertised in the magazine (e.g., coffee beverage, toothpaste, and cat food) with a score of 1 for each correct product category (a score of 3 was possible for correctly typing in all three product categories). With respect to aided recall, the participants were asked to type in the toothpaste brand that was advertised in the magazine and were scored 1 for Marvis and 0 for an incorrect answer. Category-cued brand recognition was measured by asking the respondents to mark the toothpaste brand advertised in the magazine among multiple choices (i.e., Botot, Marvis, Solidox) with a score of 1 for the correct answer and 0 for the other two incorrect choices. For brand-cued recognition, the participants were asked if there was an ad for Marvis included in the advertisements they saw in the magazine. This was scored 1 for Yes, 0 for No, and 0.5 for I don't know.

3.5.4 Attitude Measures

Attitudinal responses were measured in terms of affective and cognitive aspects of attitude construct (Crites, Fabrigar, and Petty 1994). The participants were asked to choose a number on each scale that best described their feelings toward the brand. Affective attitude was measured with three items on seven-point semantic differential scales (hate/love, sad/delighted, sorrow/joy). Cognitive attitude was also measured with three items on seven-point semantic differential scales (useless/useful, unsafe/safe, harmful/beneficial). In addition, to reflect the participants' comprehensive attitudes toward the brand, a global evaluation on the brand was measured by asking overall how much they liked Marvis as a toothpaste product (single item seven point scale, dislike/like; Biehal, Stephens, and Curlo 1992).

3.5.5 Behavioral Measure

The intent to buy the brand in the ad was measured through a single item, seven point scale. Participants were asked to indicate their likelihood of buying the advertised product if it were available and affordable, with end points labeled as "very low" and "very high."

3.5.6 Follow-up Questions

Participants were asked to report their perceived difficulty of the media multitasking task they performed and how the task made them feel on two separate seven-point semantic differential items, anchored by difficult/easy and upset/pleasant. They reported the extent to which they devoted their attention to both the reading and

video tasks on a slider (i.e., percentage of attention to reading the magazine, watching the video, and some unrelated task add up to 100% in total). In addition, participants indicated whether they were previously exposed to the experimental stimuli including the brand Marvis and the task materials. They also reported how much they enjoyed reading the article and watching the TV episode. Some demographic information such as gender, age and primary language was also asked at the end of the survey.

3.6 TABLES AND FIGURES

Table 1. Experiment design

	Better Quality	Worse Quality
Argument Strength	Strong Argument Ad	Weak Argument Ad
Endorser Attractiveness	Attractive Endorser Ad	Attractive Endorser Ad

RESULTS

4.1 Manipulation Check

Two pretests were conducted to evaluate the level of argument quality and endorser attractiveness in the Marvis advertisements. The first pretest was conducted to evaluate the quality of the messages in the ad in terms of persuasiveness (unpersuasive/persuasive), strength (weak/strong), and positiveness (bad/good) using seven-point scales. An independent samples t-test indicated that all constructs of persuasiveness ($M_{strong} = 4.33$, $SD_{strong} = 1.48$, $M_{weak} = 3.55$, $SD_{weak} = 1.4$, $t(77) = 2.43$), strength ($M_{strong} = 4.46$, $SD_{strong} = 1.27$, $M_{weak} = 3.78$, $SD_{weak} = 1.39$, $t(77) = 2.43$), and positiveness ($M_{strong} = 4.79$, $SD_{strong} = 1.28$, $M_{weak} = 3.93$, $SD_{weak} = 1.35$, $t(77) = 2.94$) were successfully manipulated, all ps < 0.05 (see Table 2). The level of endorser attractiveness was evaluated in light of likability (dislike/like), favorability (unfavorable/favorable) and attractiveness (unattractive/attractive) using seven-point scales. The results in Table 3 show that the level of attractiveness between the attractive endorser ad and the unattractive endorser ad was significantly different, $M_{attractive} = 5.65$, $SD_{attractive} = 1.41$, $M_{unattractive} = 4.94$, $SD_{unattractive} = 1.63$, $t(98) = 2.33$, $p < 0.05$. There were no significant differences in likability ($M_{attractive} = 5.08$, $SD_{attractive} = 1.46$, $M_{unattractive} = 4.94$, $SD_{unattractive} = 1.48$, $t(98) = 0.48$, $p > 0.6$) and favorability ($M_{attractive} = 5.16$, $SD_{attractive} = 1.53$, $M_{unattractive} = 4.96$, $SD_{unattractive} = 1.47$, $t(98) = 0.68$, $p > 0.4$) between these two endorsers. These results suggest that only the attractiveness of the endorser was

successfully manipulated without being confounded with other similar constructs (Perdue and Summers 1986).

4.2 Media Multitaskers

The online survey ($N = 249$) shows that the total MMI scores of students ($M = 4.67$, $SD = 1.95$) ranged from 0.18 to 11.52. They were normally distributed, with skewness of 0.7 ($SE = 0.15$) and kurtosis of 1.07 ($SE = 0.31$; see Figure 3). The participants' MMI scores ($N = 158$, $M = 4.62$, $SD = 1.8$) ranged from 0.83 to 10.79 and were also normally distributed, with skewness of 0.76 ($SE = 0.19$) and kurtosis of 1.15 ($SE = 0.38$; see Figure 4). The researchers who developed the MMI used it to identify HMMs and LMMs (Ophir et al. 2009). In their study, heavy media multitaskers were identified as those respondents who were one standard deviation or more above the mean while light media multitaskers were identified as those respondents who were one standard deviation or more below the mean. In doing this, Ophir et al. (2009) dichotomized media multitasking by splitting responses into HMMs and LMMs. In the present study, I treated media multitasking as a continuous variable because dichotomization of continuous variables is associated with a variety of problems (see, for example, Cohen 1983; Fitzsimons 2008).

4.3 Task Performance

A paired-samples *t*-test was performed to explore how participants performed the media multitasking tasks. A Pearson product-moment correlation coefficient was also conducted to examine any relationship between MMI and task-related variables. Means,

standard deviations, ranges, and reliability statistics of the variables are presented in Table 4.

A paired-samples t-test indicated that participants scored higher on the video tasks ($M = 3.15$, $SD = 1.44$) than the reading tasks ($M = 2.34$, $SD = 1.79$). The difference, -0.81, BCa 95% CI [-1.14, -0.43], was significant $t(157) = -4.57$, $p < 0.001$, $d = 0.5$.

A Pearson correlation was performed to test any relationship between participants' MMI and their task performance but there were no significant results, all rs < 0.057 (ps > 0.48). With respect to attention allocation questions, the participants' subjective report of attention to the video was significantly correlated with their scores on the video comprehension task, $r = 0.31$ ($p < 0.01$), while negatively correlated with their assessments of the task difficulty, $r = -0.42$ ($p < 0.01$). The results in Table 5 show that the participants' attention to the reading material was negatively correlated with their scores in the video task, $r = -0.29$ ($p < 0.01$), and was positively correlated with their assessments of the task difficulty, $r = 0.43$ ($p < 0.01$). There was no significant relationship between participants' self-reported feeling (i.e., whether the media multitasking makes them feel upset or pleasant) with other task-related variables. In short, participants who reported paying more attention to the video content scored higher on the related test and judged the media multitasking task less difficult.

4.4 Media Multitasking and Advertising Effectiveness

4.4.1 Cognitive Measure

A Pearson product-moment correlation coefficient was conducted to assess the relationship between the level of media multitasking and dependent variables. I did not

expect either ad feature or ad quality to affect participants' cognitive responses to (i.e.,

memory for) advertising because different ad feature and ad quality do not necessarily

enhance or reduce memory. Therefore, no analyses regarding condition effects on

memory were conducted. Means, standard deviations, ranges, and reliability statistics of

the memory variables are presented in Table 6.

The correlation matrix (see Table 7) shows that MMI scores were positively

correlated with free recall for all three product categories, $r = .18$, BCa 95% CI [0.01,

0.33], free recall for the toothpaste product category, $r = 0.18$, BCa 95% CI [0.02, 0.33],

and free recall for the brand name Marvis, $r = 0.16$, BCa 95% CI [0.02, 0.33], (all ps <

0.05). Figure 5 shows the correlations between MMI and free recall for product category

and Figure 6 shows the correlations between MMI and free recall for Marvis. There was

no significant correlation between MMI and other dependent variables such as

recognition, attitudes, and purchase intention.

How were the various dependent measures correlated with each other? Free recall

for the toothpaste was positively correlated with brand recall ($r = 0.43$, 95% BCa CI

[0.29, 0.56], $p < 0.01$), category-cued recognition ($r = .37$, 95% BCa CI [0.22, 0.48], $p <$

0.01), brand-cued recognition ($r = 0.51$, 95% BCa CI [0.38, 0.62], $p < 0.01$), as well as

cognitive attitude ($r = 0.18$, 95% BCa CI [0.02, 0.35], $p < 0.05$). Free recall for product

category was also positively correlated with cognitive attitude, $r = 0.22$, 95% BCa CI

[0.09, 0.36], ($p < 0.01$). Free recall for Marvis was positively correlated with overall

attitudes, $r = 0.22$, 95% BCa CI [0.07, 0.36], ($p < 0.05$). All in all, participants with

higher MMI scores were more likely to recall the product categories (i.e., coffee

beverage, toothpaste, and cat food) and the critical brand Marvis that were advertised in

the magazine. Therefore, hypothesis 1 was partially supported that the MMI was positively correlated only with free recall while there was no relationship with recognition.

4.4.2 Attitudinal Measure

A series of multiple regression analyses was performed to see how attitudinal responses could be explained by MMI, ad feature (argument strength vs. endorser attractiveness) and ad quality (better vs. worse). Means, standard deviations, ranges, and reliability statistics of the variables are presented in Table 8.

Overall Attitude

Overall attitude was regressed on the predictor and independent variables, MMI, ad feature, and ad quality, testing for main effects and all possible interactions (see Table 9). There were no main effects (all βs < |0.25|, ts < |1.7|, ps > 0.11), and thus there was no support for either hypothesis 2a or 2b. There was a significant two-way interaction between MMI and ad quality on overall attitude ($\beta = 0.33$, $t = 2.21$, $p = 0.03$); the more people engaged in media multitasking, the more they liked the worse ads (see Figure 7). No other two-way interaction was significant (all βs < |0.4|, ts < |2.3|, ps > 0.16). The three-way interaction among MMI, ad feature, and ad quality was marginally significant ($\beta = -0.52$, $t = -1.77$, $p = 0.08$).

In order to examine the marginal three-way interaction and test competing hypotheses 3a and 3b, I conducted two separate two-way analyses examining the effects of MMI and ad quality on participants' overall attitudes toward the brand, first among

participants in the argument strength conditions and second among participants in the endorser attractiveness conditions. In the argument strength condition, there was a main effect of MMI on overall attitudes (β = -0.11, t = -1.77, p = 0.08); the more people engaged in media multitasking, the less they liked the ad they saw. Moreover, there was a significant interaction between MMI and ad quality, β = 0.33, t = 2.40, p = 0.02 (see Table 10, Figure 8). Participants with lower MMI scores had more favorable overall attitudes when they saw the strong argument ad while participants with higher MMI scores had more favorable overall attitudes when they saw the weak argument ad. In the endorser attractiveness conditions, there were no main effects or interactions between MMI and ad quality, all βs < |0.19|, ts < |0.7|, ps > 0.56 (see Table 11, Figure 9). In short, although there was a marginal three-way interaction among ad quality, ad feature, and MMI and a two-way interaction between MMI and ad quality on overall attitude among participants in the argument strength conditions, neither ELM-based hypotheses (H2a and H3a) nor cognitive load-based hypotheses (H2b and H3b) were supported.

Affective Attitude

Affective attitudes were regressed on the predictor and independent variables, MMI, ad feature, and ad quality, testing for main effects and all possible interactions (see Table 12). There were no main effects (all βs < |2.5|, ts < |1.6|, ps > 0.13) or two-way interactions (all βs < |0.4|, ts < |1.7|, ps > 0.1), and thus there was no support for either hypothesis 2a or 2b. There was no significant three-way interaction (β = -0.29, t = -1.18, p = 0.24), and thus there was no support for either hypothesis 3a or 3b. However, as

above, I decomposed the three-way into two separate two-way analyses, this time for exploratory purposes.

In the argument strength conditions, there were no main effects (all βs < |0.07|, ts < |0.96|, ps > 0.34); however, there was a significant two-way interaction between MMI and ad quality, β = 0.2, t = 2.04, p = 0.05 (see Table 13, Figure 10). Similar to the results for overall attitudes, participants with lower MMI had more favorable affective attitudes when they saw the strong argument ad while participants with higher MMI had more favorable affective attitudes when they saw the weak argument ad. In the endorser attractiveness conditions, there were no main effects (all βs < |0.31|, ts < |1.6|, ps > 0.12) and no interaction between MMI and ad quality, β = -0.08, t = -0.34, p = 0.74 (see Table 14, Figure 11). Although there was a significant two-way interaction between MMI and ad quality on affective attitude in the argument strength conditions, neither ELM-based hypotheses (H2a and H3a) nor cognitive load-based hypotheses (H2b and H3b) were supported.

Cognitive Attitude

Cognitive attitudes were regressed on the predictor and independent variables, MMI, ad feature, and ad quality, testing for main effects and all possible interactions (see Table 15). There were no main effects (all βs < |0.11|, ts < |0.8|, ps > 0.42), or two-way interactions (all βs < |0.13|, ts < |0.65|, ps > 0.52), and thus there was no support for either hypothesis 2a or 2b. There was no three-way interaction (β = -0.26, t = -0.69, p = 0.49), and thus there was no support for either hypothesis 3a or 3b. However, as above, I decomposed the three-way into two separate two-way analyses for exploratory purposes.

In the argument strength conditions, there were no main effects (all βs < |0.11|, ts < |0.8|, ps > 0.42) or two-way interactions, β = -0.13, t = -0.65, p = 0.52 (see Table 16, Figure 12). Although the findings were not significant, participants with lower MMI had slightly more favorable cognitive attitudes when they saw the weak argument while participants with higher MMI had slightly more favorable cognitive attitudes when they saw the strong argument. In the endorser attractiveness conditions, there were no main effects (all βs < |0.22|, ts < |0.99|, ps > 0.32) or two-way interactions, β = -0.39, t = -1.19, p = 0.24 (see Table 17, see Figure 13). Although the findings were not significant, participants with lower MMI had slightly more favorable cognitive attitudes when they saw the unattractive endorser ad while participants with higher MMI had slightly more favorable cognitive attitudes when they saw the attractive endorser ad. All in all, regarding cognitive attitude, neither ELM-based hypotheses (H2a and H3a) nor cognitive load-based hypotheses (H2b and H3b) were supported.

4.4.3 Behavioral Measure

Purchase Intention

Purchase intention was regressed on the predictor and independent variables, MMI, ad feature, and ad quality, testing for main effects and all possible interactions (see Table 18). There were no main effects (all βs < |0.47|, ts < |1.39|, ps > 0.16) or two-way interactions (all βs < |0.51|, ts < |1.32|, ps > 0.19), and thus there was no support for either hypothesis 2a or 2b. There was no three-way interaction (β = 0.12, t = 0.21, p = 0.84), and thus there was no support for either hypothesis 3a or 3b. However, as above, I decomposed the three-way into two separate two-way analyses for exploratory purposes.

In the argument strength conditions, there were no main effects (all βs < |0.47|, ts < |1.44|, ps > 0.15) or two-way interactions, β = -0.02, t = -0.06, p = 0.95 (see Table 19, Figure 14). Although the findings were not significant, both participants with higher MMI and lower MMI had greater purchase intention when they saw the strong argument ad than the weak argument ad. In the endorser attractiveness conditions, there were no main effects (β = -0.22, t = -0.65, p = 0.52) or two-way interactions (β = 0.1, t = 0.2, p = 0.84). However, there was a significant main effect of ad quality on purchase intention, β = -0.85, t = -2.06, p = 0.04 (see Table 20, Figure 15). Regardless of MMI, participants' purchase intention was higher in the attractive endorser ad than the unattractive endorser ad. In conclusion, regarding purchase intention, neither ELM-based hypotheses (H2a and H3a) nor cognitive load-based hypotheses (H2b and H3b) were supported.

4.5 TABLES AND FIGURES

Table 2. Results of pretest 1 for argument strength

	Strong Argument (N = 39)	Weak Argument (N = 40)	$t(77)$	Sig.
Persuasiveness	4.33 (1.48)	3.55 (1.4)	2.426	0.02
Strength	4.46 (1.27)	3.78 (1.39)	2.429	0.03
Positiveness	4.79 (1.28)	3.93 (1.35)	2.94	0.00

Note: Standard deviations appear in parentheses.

Table 3. Results of pretest 2 for endorser attractiveness

	Attractive Endorser (N = 49)	Unattractive Endorser (N = 51)	$t(98)$	Sig.
Likability	5.08 (1.46)	4.94 (1.48)	0.479	0.63
Favorability	5.16 (1.53)	4.96 (1.47)	0.675	0.50
Attractiveness	5.65 (1.41)	4.94 (1.63)	2.334	0.02

Note: Standard deviations appear in parentheses.

Figure 3. A normal distribution of media multitasking index (MMI) from the online survey with $N = 249$
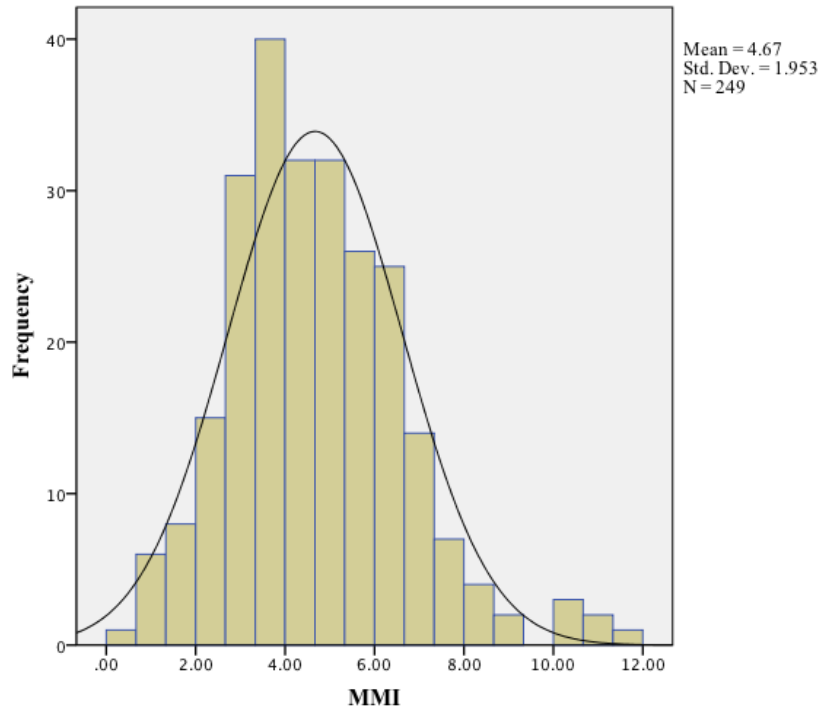
Figure 4. A normal distribution of media multitasking index (MMI) among the experiment participants with $N = 158$
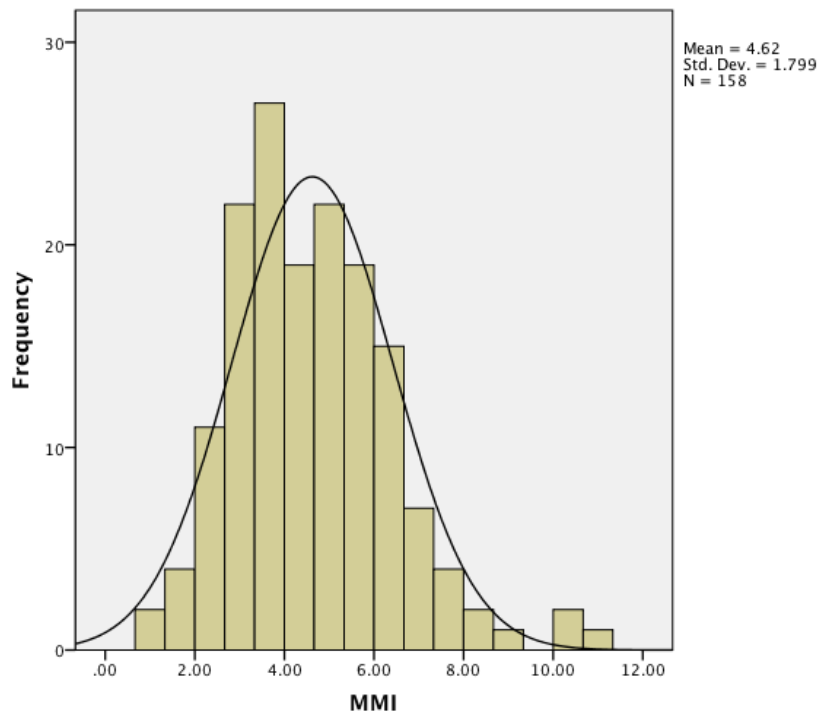
Table 4. Means, standard deviations, and possible ranges for task-related variables

	N	Mean	SD	Possible Range
Reading score	158	2.34	1.79	0 to 12
Video score	158	3.15	1.44	0 to 12
Attention to reading	158	43.3	24.86	0 to 100
Attention to reading	158	51.8	24.53	0 to 100
Attention to reading	158	4.89	7.55	0 to 100
Difficulty	158	2.23	1.14	1 to 7
Feeling	158	3.04	1.01	1 to 7
Enjoy article	158	3.07	1.81	1 to 7
Enjoy video	158	4.68	1.59	1 to 7

Table 5. Correlations among MMI, attention allocation, task performance, self-reported difficulty and feeling

		Reading score	Video score	Difficulty	Feeling
	r	-.034	.056	.155	.050
MMI	Sig.	.675	.487	.051	.529
	N	158	158	158	158
	r	.118	-.291**	.431**	.163
Attention to reading	Sig.	.140	.000	.000	.041
	N	158	158	158	158
	r	-.108	.312**	-.422**	-.138
Attention to reading	Sig.	.177	.000	.000	.084
	N	158	158	158	158
	r	-.037	-.056	-.046	-.089
Attention to reading	Sig.	.643	.482	.568	.264
	N	158	158	158	158

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6. Means, standard deviations, and possible ranges for cognitive variables

	N	Mean	SD	Possible Range
Free recall for product category	158	1.26	0.97	0 to 3
Free recall for Marvis	158	0.21	0.41	0 to 1
Category-cued brand recognition	158	0.65	0.48	0 to 1
Brand-cued recognition	158	0.7	0.29	0 to 1

Table 7. Pearson's correlation between MMI and dependent variables

		MMI	Recall for product category	Recall for toothpaste only	Recall for Marvis	Category-cued Recognition	Brand-cued Recognition
MMI	r	1	.184[*]	.178[*]	.163[*]	.000	.054
	Sig.		.021	.025	.040	.998	.498
	N	158	158	158	158	158	158
Recall for product category	r	.184[*]	1	.754[**]	.375[**]	.283[**]	.356[**]
	Sig.	.021		.000	.000	.000	.000
	N	158	158	158	158	158	158
Recall for toothpaste only	r	.178[*]	.754[**]	1	.434[**]	.365[**]	.507[**]
	Sig.	.025	.000		.000	.000	.000
	N	158	158	158	158	158	158
Recall for Marvis	r	.163[*]	.375[**]	.434[**]	1	.343[**]	.469[**]
	Sig.	.040	.000	.000		.000	.000
	N	158	158	158	158	158	158
Category-cued Recognition	r	.000	.283[**]	.365[**]	.343[**]	1	.524[**]
	Sig.	.998	.000	.000	.000		.000
	N	158	158	158	158	158	158
Brand-cued Recognition	r	.054	.356[**]	.507[**]	.469[**]	.524[**]	1
	Sig.	.498	.000	.000	.000	.000	
	N	158	158	158	158	158	158

Table 7 (cont.)

		Overall attitude	Affective attitude	Cognitive attitude
MMI	r	.003	.062	.057
	Sig.	.970	.436	.480
	N	158	158	158
Recall for product category	r	.117	.123	.221**
	Sig.	.143	.123	.005
	N	158	158	158
Recall for toothpaste only	r	-.011	.033	.180*
	Sig.	.888	.679	.024
	N	158	158	158
Recall for Marvis	r	.223**	.094	.051
	Sig.	.005	.239	.521
	N	158	158	158
Category-cued Recognition	r	-.035	.081	.140
	Sig.	.660	.311	.079
	N	158	158	158
Brand-cued Recognition	r	.018	.118	.172*
	Sig.	.825	.141	.031
	N	158	158	158

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Figure 5. Correlation between MMI and free recall for product category ($r = .18$, $p < 0.05$)
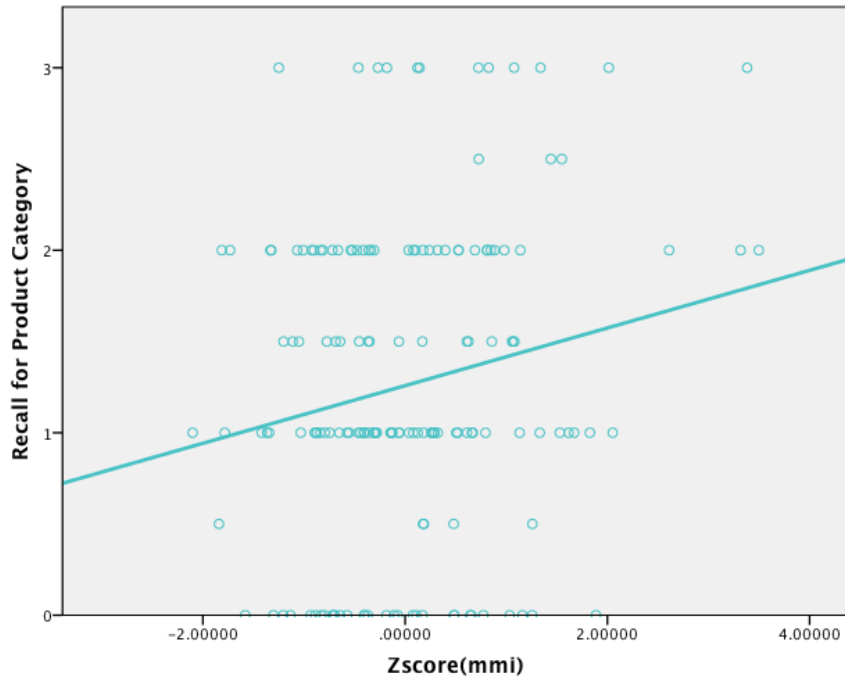
Figure 6. Correlation between MMI and free recall for Marvis ($r = .16$, $p < 0.05$)
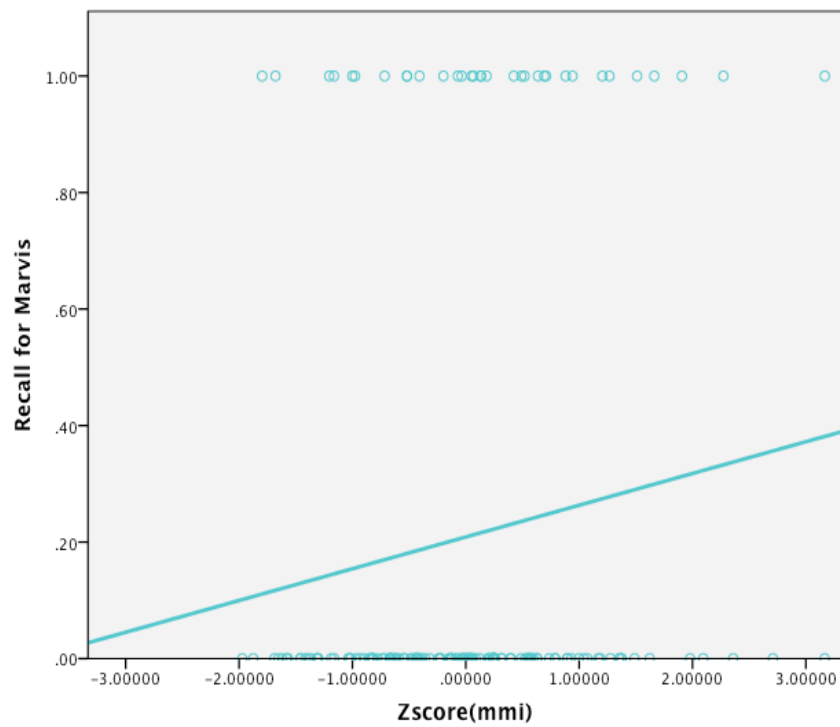
Table 8. Means, standard deviations, and possible ranges for attitudinal variables

	N	Mean	SD	Possible Range	Alpha
Overall attitude	158	3.96	0.79	1 to 7	
Affective attitude	158	4.13	0.65	1 to 7	0.89
Love	158	4.11	0.68	1 to 7	
Delighted	158	4.16	0.72	1 to 7	
Joy	158	4.13	0.76	1 to 7	
Cognitive attitude	158	4.76	1.01	1 to 7	0.89
Useful	158	4.78	1.17	1 to 7	
Safe	158	4.66	1.04	1 to 7	
Beneficial	158	4.83	1.15	1 to 7	
Purchase intention	158	3.54	1.55	1 to 7	

Table 9. The effects of MMI, ad feature, and ad quality on overall attitude

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	5.465	7	.781	1.269	.270[b]
Residual	92.307	150	.615		
Total	97.772	157			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	3.791	.120		31.692	.000
MMI	-.171	.105	-.219	-1.628	.106
Quality	.143	.175	.091	.818	.415
Feature	.244	.188	.155	1.302	.195
QxF	-.156	.269	-.086	-.582	.561
MMIxF	.276	.196	.201	1.404	.162
MMIxQ	.333	.151	.292	2.209	.029
MMIxQxF	-.516	.292	-.243	-1.767	.079

a. Dependent Variable: Overall attitudes
b. Predictors: (Constant), MMI, Quality, Feature, QualityxFeature, MMIxFeature, MMIxQuality, MMIxQualityxFeature

Figure 7. Interaction of MMI and ad quality on overall attitude
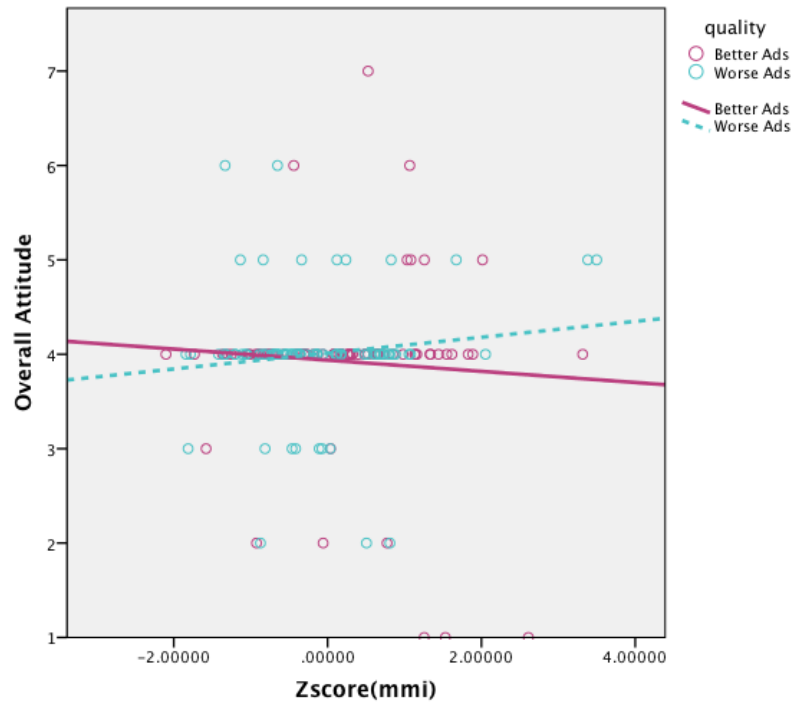
Table 10. Two-way interaction of MMI and ad quality on overall attitude for argument strength condition

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.507	3	1.169	2.250	.089[b]
Residual	39.999	77	.519		
Total	43.506	80			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	3.791	.110		34.493	.000
MMI	-.171	.096	-.269	-1.772	.080
Quality	.143	.161	.097	.890	.376
MMIxQ	.333	.138	.366	2.404	.019

a. Dependent Variable: Overall attitude
b. Predictors: (Constant), MMI, Quality, MMIxQuality

Table 11. Two-way interaction of MMI and ad quality on overall attitude for endorser attractiveness condition

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.367	3	.122	.171	.916[b]
Residual	52.308	73	.717		
Total	52.675	76			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	4.036	.156		25.868	.000
MMI	.105	.179	.104	.586	.560
Quality	-.013	.220	-.008	-.061	.951
MMIxQ	-.183	.270	-.114	-.677	.500

a. Dependent Variable: Overall attitude
b. Predictors: (Constant), MMI, Quality, MMIxQuality

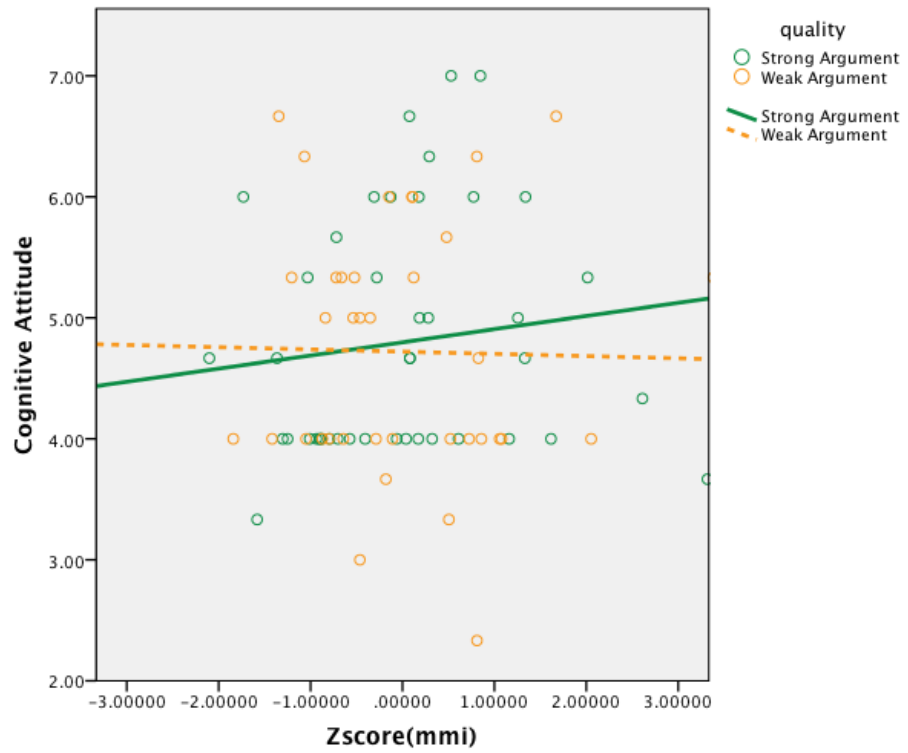Figure 8. Interaction of MMI and argument strength on overall attitude
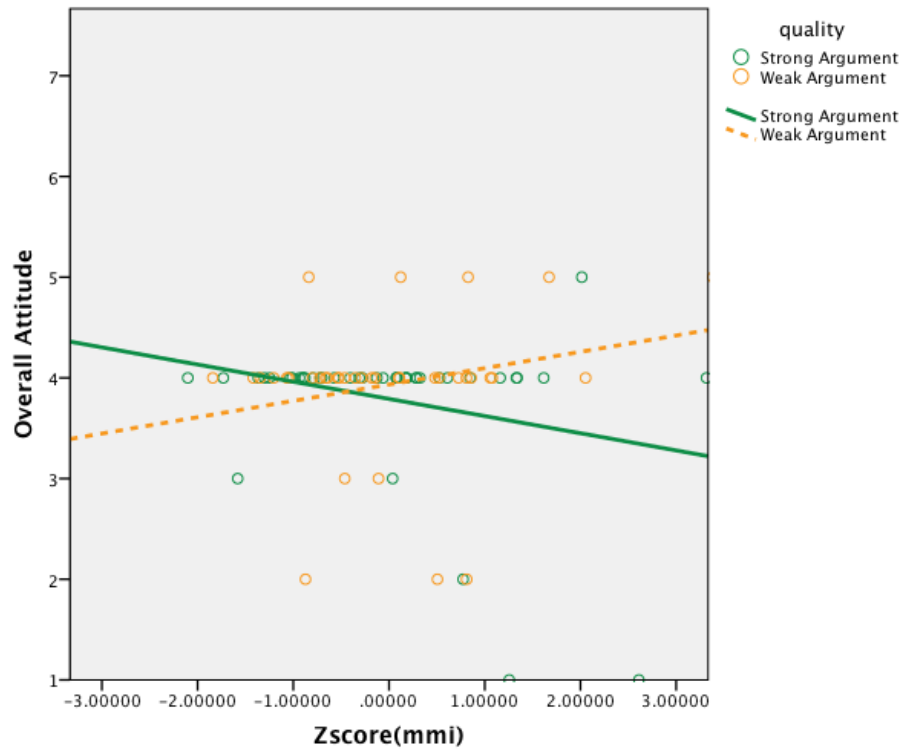
Figure 9. Interaction of MMI and endorser attractiveness on overall attitude
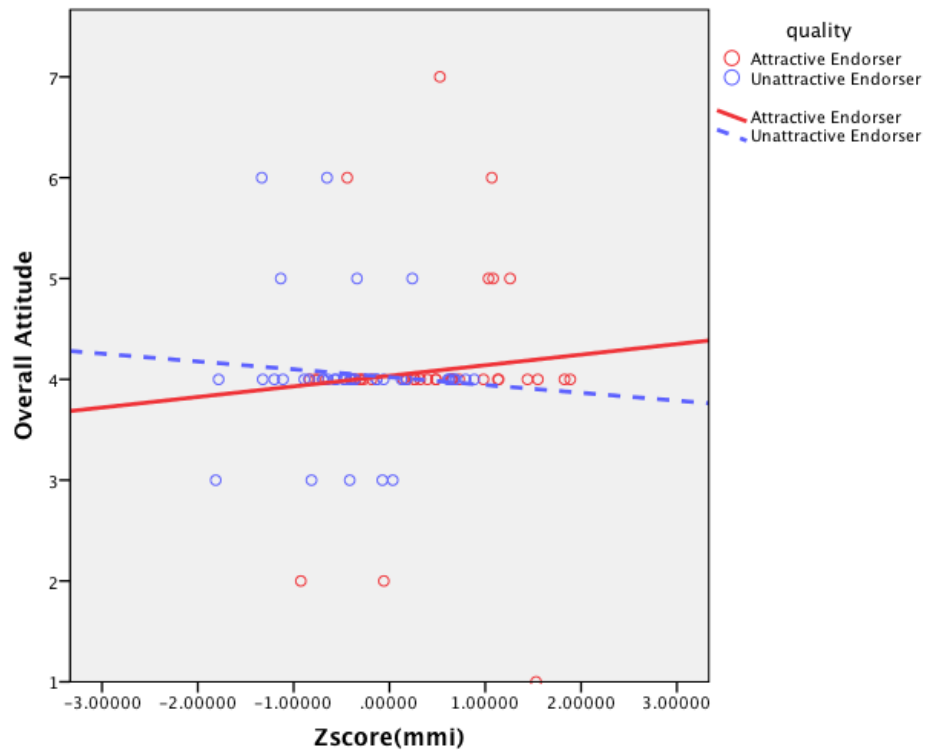
Table 12. The effects of MMI, ad feature, and ad quality on affective attitude

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.121	7	.446	1.045	.402[b]
Residual	63.977	150	.427		
Total	67.098	157			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	4.078	.100		40.943	.000
MMI	-.066	.087	-.102	-.755	.451
Quality	.025	.146	.019	.174	.862
Feature	.236	.156	.181	1.508	.134
QxF	-.333	.224	-.221	-1.491	.138
MMIxF	.072	.163	.063	.440	.660
MMIxQ	.202	.125	.214	1.612	.109
MMIxQxF	-.286	.243	-.163	-1.176	.242

a. Dependent Variable: Affective attitude
b. Predictors: (Constant), MMI, Quality, Feature, QualityxFeature, MMIxFeature, MMIxQuality, MMIxQualityxFeature

Table 13. Two-way interaction of MMI and ad quality on affective attitude for argument strength condition

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.245	3	.415	1.552	.208[b]
Residual	20.585	77	.267		
Total	21.830	80			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	4.078	.079		51.716	.000
MMI	-.066	.069	-.147	-.954	.343
Quality	.025	.115	.024	.219	.827
MMIxQ	.202	.099	.314	2.036	.045

a. Dependent Variable: Affective attitude
b. Predictors: (Constant), MMI, Quality, MMIxQuality

Table 14. Two-way interaction of MMI and ad quality on affective attitude for endorser attractiveness condition

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.632	3	.544	.915	.438[b]
Residual	43.392	73	.594		
Total	45.025	76			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	4.313	.142		30.356	.000
MMI	.006	.163	.007	.037	.970
Quality	-.308	.200	-.201	-1.537	.129
MMIxQ	-.083	.246	-.056	-.340	.735

a. Dependent Variable: Affective attitude
b. Predictors: (Constant), MMI, Quality, MMIxQuality

Figure 10. Interaction of MMI and argument strength on affective attitude
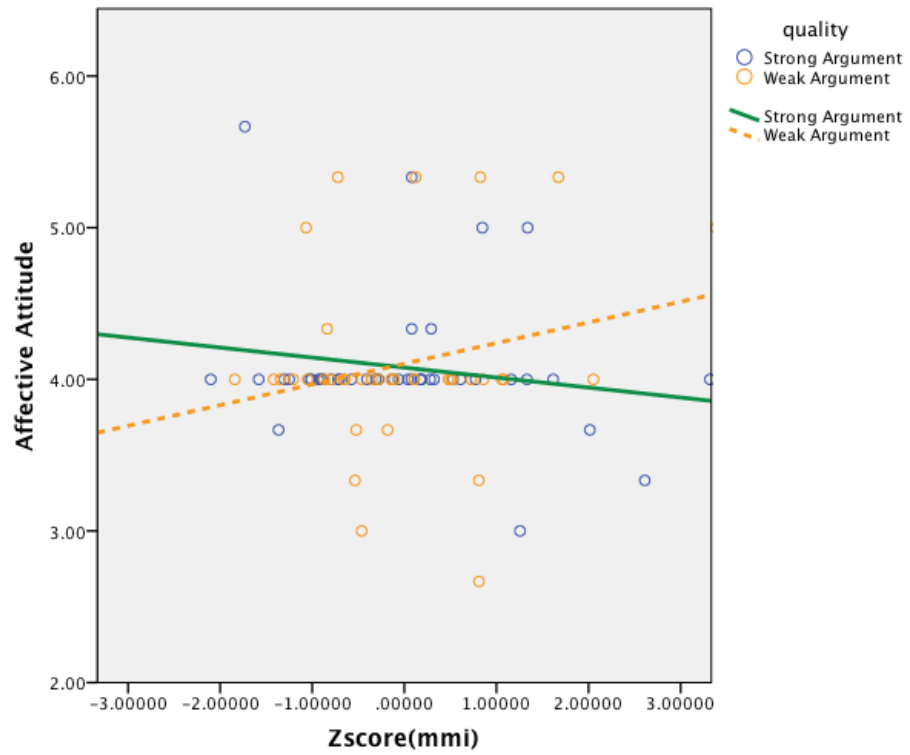
Figure 11. Interaction of MMI and endorser attractiveness on affective attitude
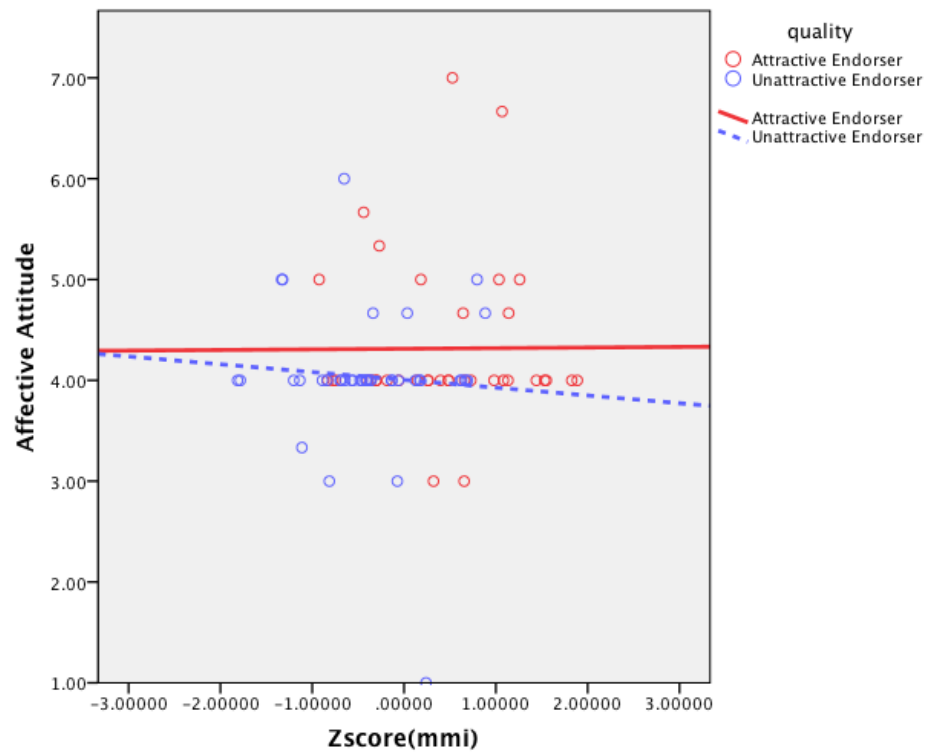
Table 15. The effects of MMI, ad feature, and ad quality on cognitive attitude

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.872	7	.410	.389	.908[b]
Residual	158.384	150	1.056		
Total	161.255	157			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	4.798	.157		30.619	.000
MMI	.109	.137	.109	.792	.429
Quality	-.077	.229	-.038	-.337	.736
Feature	-.054	.246	-.027	-.218	.828
QxF	-.058	.352	-.025	-.165	.869
MMIxF	.106	.257	.060	.413	.680
MMIxQ	-.127	.197	-.087	-.644	.521
MMIxQxF	-.264	.382	-.097	-.691	.491

a. Dependent Variable: Cognitive attitude
b. Predictors: (Constant), MMI, Quality, Feature, QualityxFeature, MMIxFeature, MMIxQuality, MMIxQualityxFeature

Table 16. Two-way interaction of MMI and ad quality on cognitive attitude for argument strength condition

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.807	3	.269	.257	.856[b]
Residual	80.578	77	1.046		
Total	81.385	80			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	4.798	.156		30.757	.000
MMI	.109	.137	.126	.796	.428
Quality	-.077	.228	-.038	-.339	.736
MMIxQ	-.127	.197	-.102	-.647	.520

a. Dependent Variable: Cognitive attitude
b. Predictors: (Constant), MMI, Quality, MMIxQuality

Table 17. Two-way interaction of MMI and ad quality on cognitive attitude for endorser attractiveness condition

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2.062	3	.687	.645	.589[b]
Residual	77.805	73	1.066		
Total	79.867	76			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	4.744	.190		24.936	.000
MMI	.215	.218	.173	.984	.328
Quality	-.135	.268	-.067	-.505	.615
MMIxQ	-.391	.329	-.198	-1.190	.238

a. Dependent Variable: Cognitive attitude
b. Predictors: (Constant), MMI, Quality, MMIxQuality

Figure 12. Interaction of MMI and argument strength on cognitive attitude

Figure 13. Interaction of MMI and endorser attractiveness on cognitive attitude
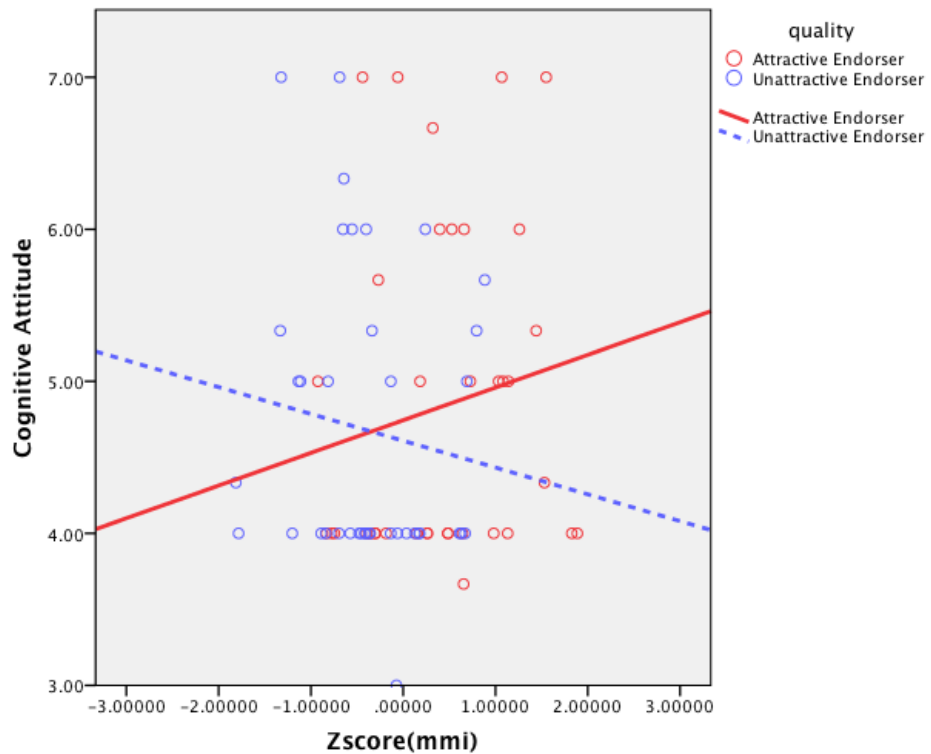
Table 18. The effects of MMI, ad feature, and ad quality on purchase intention

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	23.593	7	3.370	1.438	.194[b]
Residual	351.597	150	2.344		
Total	375.190	157			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	3.790	.233		16.232	.000
MMI	.282	.205	.185	1.381	.169
Quality	-.469	.341	-.152	-1.375	.171
Feature	.169	.366	.055	.462	.644
QxF	-.380	.524	-.106	-.725	.469
MMIxF	-.502	.383	-.187	-1.310	.192
MMIxQ	-.017	.294	-.007	-.057	.955
MMIxQxF	.119	.569	.029	.208	.835

a. Dependent Variable: Purchase intention
b. Predictors: (Constant), MMI, Quality, Feature, QualityxFeature, MMIxFeature, MMIxQuality, MMIxQualityxFeature

Table 19. Two-way interaction of MMI and ad quality on purchase intention for argument strength condition

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	12.231	3	4.077	1.874	.141[b]
Residual	167.497	77	2.175		
Total	179.728	80			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	3.790	.225		16.850	.000
MMI	.282	.197	.220	1.433	.156
Quality	-.469	.329	-.157	-1.427	.158
MMIxQ	-.017	.283	-.009	-.059	.953

a. Dependent Variable: Purchase intention
b. Predictors: (Constant), MMI, Quality, MMIxQuality

Table 20. Two-way interaction of MMI and ad quality on purchase intention for endorser attractiveness condition

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	11.147	3	3.716	1.473	.229[b]
Residual	184.100	73	2.522		
Total	195.247	76			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	SE B	Beta		
(Constant)	3.959	.293		13.527	.000
MMI	-.219	.336	-.113	-.653	.516
Quality	-.849	.413	-.267	-2.057	.043
MMIxQ	.102	.506	.033	.202	.841

a. Dependent Variable: Purchase intention
b. Predictors: (Constant), MMI, Quality, MMIxQuality

Figure 14. Interaction of MMI and argument strength on purchase intention
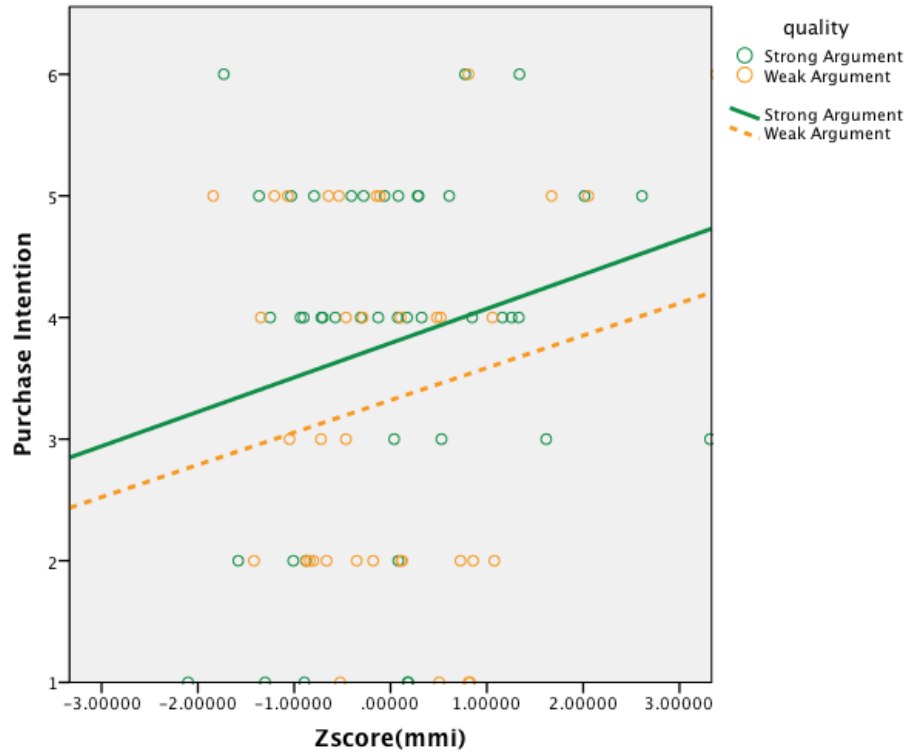
Figure 15. Interaction of MMI and endorser attractiveness on purchase intention
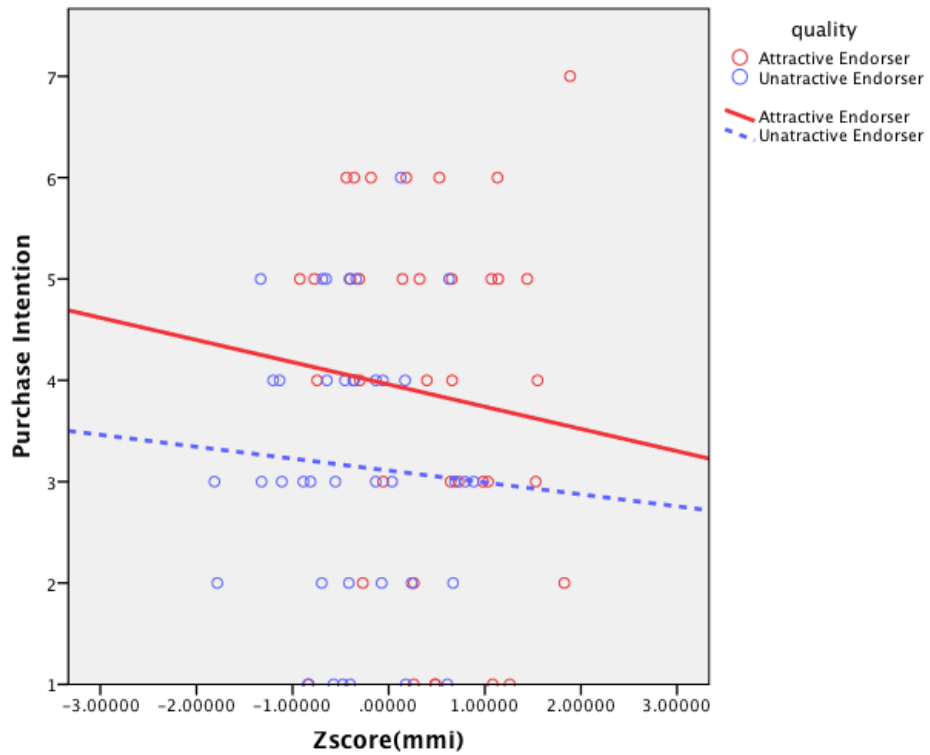
CHAPTER 5

DISCUSSION

5.1 Implications

The purpose of this study was to understand how people—varying in the extent to

which they engage in media multitasking—attend to substantive issues (e.g., how strong

the argument is) and peripheral information (e.g., how attractive the endorser is) in

advertisements in a media multitasking environment. The results show that the MMI

score was weakly but statistically significantly correlated with free recall for product

category; participants with higher MMI scores were more likely to remember product

categories that were advertised in the magazine. On the other hand, there was no

correlation between MMI and recognition measures (both category-cued recognition and

brand-cued recognition). This may be due to the fact that recognition tests are easier than

recall tests (Cabeza, Kapur, Craik, McIntosh, Houle, and Tulving 1997). In this

experiment, the recognition tasks were to select the correct brand name Marvis from the

multiple choices; whereas in recall tasks participants had to generate the answer without

any retrieval cues. Moreover, participants were provided with more cues as they moved

on to the next cognitive tests and, in fact, they scored better after each cognitive test;

category-cued recall test ($M = 0.21$, $SD = 0.4$) contained information that there was a

"toothpaste" ad, category-cued recognition test ($M = 0.65$, $SD = 0.48$) was a multiple

choice question with having Marvis among options, and brand-cued recognition test ($M =

0.69$, $SD = 0.29$) was simply a yes or no question. This easier nature of recognition tests

may have made it difficult to detect any effect of dual tasking differences between subjects in recognition tasks.

With respect to attitudinal and behavioral responses, the results failed to support both the ELM-based hypotheses and the ELM with cognitive load-based hypotheses. One possible explanation can be due to the task difficulty. The level of task difficulty in the present study may have left participants unable to recognize any difference in the level of argument strength and endorser attractiveness. Participants scored 2.34, on average, out of 12 in the reading task and scored 3.15 out of 12 in the video task on average. The highest scores obtained were 5 for the reading task and 4 for the video task. This suggests that the task of media multitasking was extremely difficult and may simply have leveled out any differences among conditions.

While the results failed to support any hypotheses, participants with higher MMI had better overall and affective attitudes toward the brand when they saw the weak argument ad. On the other hand, participants with lower MMI had better overall and affective attitudes when they saw the strong argument ad. These results are somewhat counterintuitive with what the ELM would predict in that people tend to be easily swayed by peripheral cues in advertising under cognitive load. Moreover, the results were also inconsistent with the ELM with cognitive load-based set of hypotheses that neither HMMs nor LMMs would be able to process information carefully due to a cognitively demanding media multitasking environment. One possible explanation for the counterintuitive significant findings in the present study can be simple Type I error. With respect to significant interaction effects of MMI and ad quality on overall and affective attitudes in the argument strength conditions, Type I error might have occurred that, in

fact, there were no significant interactions. As above, the media multitasking task was highly difficult and it is questionable whether participants were able to evaluate the argument quality in the ads. However, if Type I error had not occurred, participants actually responded differently to the strong and weak argument ads varying by their media multitasking propensity. In fact, previous studies regarding the influence of multitasking on message processing suggest that such distraction can compromise people's ability to evaluate argument quality, resulting in higher persuasion effects when argument quality is weak (Chowdhury et al. 2007; Jeong and Hwang 2012). From this perspective, HMMs—who were more likely to be distracted (Ophir et al. 2009)—may have failed to evaluate the low quality of arguments in the ad while LMMs—who were better at task switching (Ophir et al. 2009)—may have successfully recognized the strong argument ad.

The larger body of advertising research has focused on traditional media consumption, which regards the consumer as a passive user of one type of media at a time. Several studies in the field of communication examined the negative impact of multitasking on cognitive control. Researchers conducting these studies mainly focused on exploring how background media can have a negative influence on primary tasks such as doing homework (Beentjes, Koolstra, and van der Voort 1996; Pool, Koolstra, and van der Voort 2003). However, these studies have not covered the influence of advertising in a multimedia context. The present study has important implications in that I not only viewed consumers as active media users but I also explored how they, based on their media consumption habits, react differently to a competitive media environment and attend to different cues in advertising. Moreover, previous research on media multitaskers

used abstract stimuli (e.g., differentiating blue and red rectangles) to test HMMs and LMMs' different processing styles, which is far from any real life experience and lacks ecological validity. However, in this study, HMMs and LMMs were exposed to more natural media multitasking situations and how they process advertising differently was examined. It created more naturalistic media environments generating higher ecological (and possibly higher external) validity.

This research topic is clearly of interest to advertisers and media planners who aim to gain consumers' attention in a media multitasking context. It should also be noted that using multiple media platforms at once is in the same line with the Integrated Marketing Communications (IMC), which suggests greater synergistic effects of cross-media campaigns than the sum of each platform benefit. Discovering the underlying mechanisms of how consumers react to second screens and perceive advertising through various platforms may be another academic research topic in the future.

5.2 Limitations

The present study is not without flaws. First of all, it is questionable whether the MMI, a self-reported media use measure, is accurate and reliable. Participants in this study had to entirely rely on their memory to report their media usage patterns in everyday life. This may have generated recall bias either in an overestimating or in an underestimating manner. In fact, researchers have found that people were more likely to over-report media use in survey responses, compared to diary methods (Greenberg, Eastin, Skalski, Cooper, Levy, and Lachlan 2007). Moreover, the MMI scale is extremely long (i.e., 168 questions in total), so participants may not have been able to pay full

attention to read through the questionnaire to the end. This is even more problematic

when considering HMMs tend to have shorter attention spans; HMMs may be more

likely to satisfice when completing the measure. Therefore, future research may involve

developing a new media-use measure that better estimates peoples' multiple media use in

real life by, say, combining the survey and diary methods (Greenberg et al. 2007).

Secondly, although participants were randomly assigned to experimental

conditions, secondary analyses revealed a significant two-way interaction between ad

feature and ad quality on MMI ($\beta = -0.87$, $t = -2.77$, $p < 0.01$). Simple effects analyses

revealed no significant difference in participants' MMI scores between the strong ($M = 0$,

$SD = 1.16$) and weak argument conditions ($M = 0.08$, $SD = 1.19$), $t(79) = 0.3$, $p > 0.76$.

However, the mean difference of MMI scores between the attractive ($M = -0.38$, $SD =$

0.68) and unattractive endorser conditions ($M = 0.41$, $SD = 0.78$) was significant, $t(75) =$

-4.74, $p < 0.001$. This accidental confounding of the endorser attractiveness manipulation

with MMI makes it difficult to interpret any main effect or interaction involving

attractiveness. HMMs were more likely to see the attractive endorser, and LMMs were

more likely to see the unattractive endorser. As such, any effect of endorser attractiveness

that obtained in the analyses could also have been due to participants' MMI status.

Thirdly, the effectiveness of advertising can differ by the level of distraction.

Although in this study I asked participants to pay attention to both tasks in order to create

a media multitasking environment, in follow-up studies I may focus on manipulating the

level of distraction by designating primary and secondary tasks (i.e., reading a magazine

as a primary task while playing a video for a background noise). This is because

allocating varying amounts of attention to each medium may result in different responses

to advertising information. For instance, participants who are asked to pay more attention to the video content may be less likely to be influenced by the ads in the magazine. In this way, manipulating the level of distraction and setting the priority of attended media can also be another research topic.

Lastly, although the pretesting for all four experimental materials was successful, it was not conducted under high cognitive load. In the actual study the ads were exposed to participants in a demanding media multitasking environment. The ads may have been processed differently under this cognitively demanding situation. Therefore, follow-up studies should include manipulation checks for the stimuli and see how people respond to various ad conditions during experiments. In addition, it is also worth investigating whether people are more responsive to specific ad features such as familiarity of endorser (i.e., celebrity source attractiveness as peripheral cues; Kahle and Homer 1985) when they can only make minimal cognitive effort to process the ads. Discovering which type of ad feature is more or less effective can be another future topic.

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APPENDIX A: MEDIA MULTITASKING INDEX

SID_____

Do you read **print media** (for either work or pleasure)?
This would include books, newspapers, magazines, traditional mail, etc.

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity?
(please count all hours spent doing this activity, whether you are doing this
activity only, or whether you are doing additional things at the same time)

When you are **reading print media**, how often are you
also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant messaging (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Reading other print media simultaneously	☐	☐	☐	☐

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Do you **watch television**?
This would include watching network/cable/on-demand/TiVo programs, as well as watching videos and/or DVDs on a TV (but **not** computer/internet downloaded or streaming video)?

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity? (please count all hours spent doing this activity, whether you are doing this activity only, or whether you are doing additional things at the same time)

When you are **watching television/video/DVDs**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching video content on a computer (not on a TV)	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant messaging (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Watching another television, video, and/or DVDs (on a TV)	☐	☐	☐	☐

Do you **watch video on a computer**?
This includes YouTube, watching television episodes on your computer (e.g., Hulu), DVDs, online lectures, video streaming, etc.

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity? (please count all hours spent doing this activity, whether you are doing this activity only, or whether you are doing additional things at the same time)

When you are **watching video content on a computer**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant messaging (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Watching multiple videos on a computer simultaneously	☐	☐	☐	☐

Do you **listen to music**?
This would include listening to an MP3 player (such as an iPod), listening to music on CDs, on the radio, on the internet or on your computer, etc.

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity? (please count all hours spent doing this activity, whether you are doing this activity only, or whether you are doing additional things at the same time)

When you are **listening to music**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant messaging (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Listening to other music	☐	☐	☐	☐

Do you **listen to non-musical audio**?
This includes news/sports/talk radio, podcasts, web-casts, audio books, etc.

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity?
(please count all hours spent doing this activity, whether you are doing this
activity only, or whether you are doing additional things at the same time)

When you are **listening to non-musical audio**, how
often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant messaging (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Listening to other non-musical audio	☐	☐	☐	☐

Do you **play video or computer games**?
This includes online role-playing and multi-player games, console games, portable games, any computer-games, etc.

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity? (please count all hours spent doing this activity, whether you are doing this activity only, or whether you are doing additional things at the same time) ☐

When you are **playing a video game**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant messaging (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Playing other video or computer games	☐	☐	☐	☐

Do you **talk on the telephone**?
This includes both land-line and mobile phones, as well as computer-based voice calls and video conferencing calls using such services as Skype or iChat.

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity?
(please count all hours spent doing this activity, whether you are doing this activity only, or whether you are doing additional things at the same time)

When you are **talking to somebody on a phone**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Instant messaging (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Talking to somebody else on a phone or video conference	☐	☐	☐	☐

Do you use **instant messaging**?
This includes text-based instant messaging programs such as AIM, Adium, Google Talk, iChat or Skype chats (**not** voice or video calls), etc. Please **do not include** mobile-phone text-messaging, SMS, MMS, or IM

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity? (please count all hours spent doing this activity, whether you are doing this activity only, or whether you are doing additional things at the same time)

When you are using **instant messaging**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Instant messaging (or chatting with) multiple people at the same time	☐	☐	☐	☐

Do you send and receive **text messages** or SMS using a **mobile phone**?
This includes MMSs (Multimedia Messaging Service – such as picture messages).

Yes ☐   No ☐

If yes, approximately **how many text messages** do you send and receive **on an average day**?

Describe your use of mobile–phone texting. Do you use it for continuous conversations, simple questions and answers, or just to send out an occasional piece of info?

When you are using **texting with your mobile phone**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non–musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant messaging (chat)	☐	☐	☐	☐
Reading/writing e–mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Texting with multiple people at the same time	☐	☐	☐	☐

Do you read and write **e-mail**?
This includes regular e-mail and webmail

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity?
(please count all hours spent doing this activity, whether you are doing this
activity only, or whether you are doing additional things at the same time)

When you are reading and/or writing **e-mail**, how often
are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant message (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Reading and/or writing multiple e-mails at the same time	☐	☐	☐	☐

Do you surf the web, **read web pages, pdfs**, and/or other electronic documents?

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity? (please count all hours spent doing this activity, whether you are doing this activity only, or whether you are doing additional things at the same time)

When you are **reading web pages, pdfs, and/or electronic documents**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant message (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Using other computer applications (word processing, spreadsheets, programming, etc.)	☐	☐	☐	☐
Reading multiple web pages, pdfs, and/or other electronic documents at the same time	☐	☐	☐	☐

Do you use computer applications such as **word processing, spreadsheets, programming,** and other applications **not already asked about**?

Yes ☐   No ☐

If yes, approximately how many hours a week do you spend doing this activity? (please count all hours spent doing this activity, whether you are doing this activity only, or whether you are doing additional things at the same time)

When you are using **these "other" applications**, how often are you also doing the following **at the same time**:

	Never	A little of the time	Some of the time	Most of the time
Reading print media	☐	☐	☐	☐
Watching television, video, and/or DVDs (on a TV)	☐	☐	☐	☐
Watching video content on a computer	☐	☐	☐	☐
Listening to music	☐	☐	☐	☐
Listening to non-musical audio (news radio, podcasts, etc...)	☐	☐	☐	☐
Playing video or computer games	☐	☐	☐	☐
Talking on the phone	☐	☐	☐	☐
Instant message (chat)	☐	☐	☐	☐
Mobile phone text-messaging	☐	☐	☐	☐
Reading/writing e-mails	☐	☐	☐	☐
Reading web pages, pdfs, and/or other electronic documents	☐	☐	☐	☐
Using more than one of these "other" applications at the same time	☐	☐	☐	☐

THE TALENT MYTH

MALCOLM GLADWELL has been a staff writer with *The New Yorker* magazine since 1996. His 1999 profile of Ron Popeil won a National Magazine Award, and in 2005 he was named one of Time Magazine's 100 Most Influential People.

The Talent Myth
Are smart people overrated?

By Malcolm Gladwell

FIVE years ago, several executives at McKinsey & Company, America's largest and most prestigious management-consulting firm, launched what they called the War for Talent. Thousands of questionnaires were sent to managers across the country. Eighteen companies were singled out for special attention, and the consultants spent up to three days at each firm, interviewing everyone from the C.E.O. down to the human-resources staff. McKinsey wanted to document how the top-performing companies in America differed from other firms in the way they handle matters like hiring and promotion. But, as the consultants sifted through the piles of reports and questionnaires and interview transcripts, they grew convinced that the difference between winners and losers was more profound than they had

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realized. "We looked at one another and suddenly the light bulb blinked on," the three consultants who headed the project--Ed Michaels, Helen Handfield-Jones, and Beth Axelrod--write in their new book, also called "The War for Talent." The very best companies, they concluded, had leaders who were obsessed with the talent issue. They recruited ceaselessly, finding and hiring as many top performers as possible. They singled out and segregated their stars, rewarding them disproportionately, and pushing them into ever more senior positions. "Bet on the natural athletes, the ones with the strongest intrinsic skills," the authors approvingly quote one senior General Electric executive as saying. "Don't be afraid to promote stars without specifically relevant experience, seemingly over their heads." Success in the modern economy, according to Michaels, Handfield-Jones, and Axelrod, requires "the talent mind-set": the "deep-seated belief that having better talent at all levels is how you outperform your competitors."

This "talent mind-set" is the new orthodoxy of American management. It is the intellectual justification for why such a high premium is placed on degrees from first-tier business schools, and why the compensation packages for top executives have become so lavish. In the modern corporation, the system is considered only as strong as its stars, and, in the past few years, this message has been preached by consultants and management gurus all over the world. None, however, have spread the word quite so ardently as McKinsey, and, of all its clients, one firm took the talent mind-set closest to heart. It was a company where McKinsey conducted twenty separate projects, where McKinsey's billings topped ten million dollars a year, where a McKinsey director regularly attended board meetings, and where the C.E.O. himself was a former McKinsey partner. The company, of course, was Enron.

The Enron scandal is now almost a year old. The reputations of Jeffrey Skilling and Kenneth Lay, the company's two top executives, have been destroyed. Arthur Andersen, Enron's auditor, has been driven out of business, and now investigators have turned their attention to Enron's investment bankers. The one Enron partner that has escaped largely unscathed is McKinsey, which is odd, given that it essentially created the blueprint for the Enron culture. Enron was the ultimate "talent" company. When Skilling started the corporate division known as Enron Capital and Trade, in 1990, he "decided to bring in a steady stream

2

I
LOVE
YOU
MORE
THAN
THE FIRST
CUP OF
COFFEE

of the very best college and M.B.A. graduates he could find to stock the company with talent," Michaels, Handfield-Jones, and Axelrod tell us. During the nineties, Enron was bringing in two hundred and fifty newly minted M.B.A.s a year. "We had these things called Super Saturdays," one former Enron manager recalls. "I'd interview some of these guys who were fresh out of Harvard, and these kids could blow me out of the water. They knew things I'd never heard of." Once at Enron, the top performers were rewarded inordinately, and promoted without regard for seniority or experience. Enron was a star system. "The only thing that differentiates Enron from our competitors is our people, our talent," Lay, Enron's former chairman and C.E.O., told the McKinsey consultants when they came to the company's headquarters, in Houston. Or, as another senior Enron executive put it to Richard Foster, a McKinsey partner who celebrated Enron in his 2001 book, "Creative Destruction," "We hire very smart people and we pay them more than they think they are worth."

The management of Enron, in other words, did exactly what the consultants at McKinsey said that companies ought to do in order to succeed in the modern economy. It

hired and rewarded the very best and the very brightest--and it is now in bankruptcy. The reasons for its collapse are complex, needless to say. But what if Enron failed not in spite of its talent mind-set but because of it? What if smart people are overrated?

The current corporate dogma encourages star employees to make their own rules.

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AT the heart of the McKinsey vision is a process that the War for Talent advocates refer to as "differentiation and affirmation." Employers, they argue, need to sit down once or twice a year and hold a "candid, probing, no-holds-barred debate about each individual," sorting employees into A, B, and C groups. The A's must be challenged and disproportionately rewarded. The B's need to be encouraged and affirmed. The C's need to shape up or be shipped out. Enron followed this advice almost to the letter, setting up internal Performance Review Committees. The members got together twice a year, and graded each person in their section on ten separate criteria, using a scale of one to five. The process was called "rank and yank." Those graded at the top of their unit received bonuses two-thirds higher than those in the next thirty per cent; those who ranked at the bottom received no bonuses and no extra stock options--and in some cases were pushed out.

How should that ranking be done? Unfortunately, the McKinsey consultants spend very little time discussing the matter. One possibility is simply to hire and reward the smartest people. But the link between, say, I.Q. and job performance is distinctly underwhelming. On a scale where 0.1 or below means virtually no correlation and 0.7 or above implies a strong correlation (your height, for example, has a 0.7 correlation with your parents' height), the correlation between I.Q. and occupational success is between 0.2 and 0.3. "What I.Q. doesn't pick up is effectiveness at common-sense sorts of things, especially working with people," Richard Wagner, a psychologist at Florida State University, says. "In terms of how we evaluate schooling, everything is about working by yourself. If you work with someone else, it's called cheating. Once you get out in the real world, everything you do involves working with other people."

Wagner and Robert Sternberg, a psychologist at Yale University, have developed tests of this practical component, which they call "tacit knowledge." Tacit knowledge involves things like knowing how to manage yourself and others, and how to navigate complicated social situations. Here is a question from one of their tests:

You have just been promoted to head of an important department in your organization. The previous head has been transferred to an equivalent position in a less important department. Your understanding of the reason for the move is that the performance of the department as a whole has been mediocre. There have not been any glaring

5

The wedding plans were going perfectly.
But suddenly I noticed something wrong.
My smile wasn't white enough.
The big day was just a few weeks away!

But I tried *Marvis!*

At last, on the most beautiful day of my life,
I finally had the most beautiful smile.

Are you ready for a beautiful, white smile?

The wedding plans were going perfectly.
But suddenly I noticed something wrong.
My smile wasn't white enough.
The big day was just a few weeks away!

But I tried *Marvis!*

At last, on the most beautiful day of my life,
I finally had the most beautiful smile.

Are you ready for a beautiful, white smile?

MARVIS, MARVELOUS TOOTHPASTE

MARVIS, MARVELOUS TOOTHPASTE

Whitening formulas from England!

Marvis gently cleans and polishes with only a little gritty residue.

It has a peppermint flavor that keeps your breath fresh for hours.

This stylish tube comes in 4 different colors in 2.8 oz.

Marvis offers you just as pleasurable of a taste sensation as other brand.

We are celebrating our 5th anniversary,

buy one and get one 5 percent off!

☑ Note that Marvis contains some ingredients approved by the FDA.

Whitening formulas from Italy!

Marvis gently cleans and polishes without any gritty residue.

It has a peppermint flavor that keeps your breath fresh all day long.

This stylish tube comes in 8 different colors in 4 oz.

Marvis offers you a more pleasurable taste sensation than any other brand.

We are celebrating our 50th anniversary,

buy one and get one free!

☑ Note that Marvis contains safe ingredients approved by the FDA.

Note: One of experimental stimuli was embedded in 8th page of the magazine.

deficiencies, just a perception of the department as so-so rather than very good. Your charge is to shape up the department. Results are expected quickly. Rate the quality of the following strategies for succeeding at your new position.

a) Always delegate to the most junior person who can be trusted with the task.
b) Give your superiors frequent progress reports.
c) Announce a major reorganization of the department that includes getting rid of whomever you believe to be "dead wood."
d) Concentrate more on your people than on the tasks to be done.
e) Make people feel completely responsible for their work.

Wagner finds that how well people do on a test like this predicts how well they will do in the workplace: good managers pick (b) and (e); bad managers tend to pick (c). Yet there's no clear connection between such tacit knowledge and other forms of knowledge and experience. The process of assessing ability in the workplace is a lot messier than it appears.

An employer really wants to assess not potential but performance. Yet that's just as tricky. In "The War for Talent," the authors talk about how the Royal Air Force used the A, B, and C ranking system for its pilots during the Battle of Britain. But ranking fighter pilots--for whom there are a limited and relatively objective set of performance criteria (enemy

kills, for example, and the ability to get their formations safely home)--is a lot easier than assessing how the manager of a new unit is doing at, say, marketing or business development. And whom do you ask to rate the manager's performance? Studies show that there is very little correlation between how someone's peers rate him and how his boss rates him. The only rigorous way to assess performance, according to human-resources specialists, is to use criteria that are as specific as possible. Managers are supposed to take detailed notes on their employees throughout the year, in order to remove subjective personal reactions from the process of assessment. You can grade someone's performance only if you *know* their performance. And, in the freewheeling culture of Enron, this was all but impossible. People deemed "talented" were constantly being pushed into new jobs and given new challenges. Annual turnover from promotions was close to twenty per cent. Lynda Clemmons, the so-called "weather babe" who started Enron's weather derivatives business, jumped, in seven quick years, from trader to associate to manager to director and, finally, to head of her own business unit. How do you evaluate someone's performance in a system where no one is in a job long enough to allow such evaluation?

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The answer is that you end up doing performance evaluations that aren't based on performance. Among the many glowing books about Enron written before its fall was the best-seller "Leading the Revolution," by the management consultant Gary Hamel, which tells the story of Lou Pai, who launched Enron's power-trading business. Pai's group began with a disaster: it lost tens of millions of dollars trying to sell electricity to residential consumers in newly deregulated markets. The problem, Hamel explains, is that the markets weren't truly deregulated: "The states that were opening their markets to competition were still setting rules designed to give their traditional utilities big advantages." It doesn't seem to have occurred to anyone that Pai ought to have looked into those rules more carefully before risking millions of dollars. He was promptly given the chance to build the commercial electricity-outsourcing business, where he ran up several more years of heavy losses before cashing out of Enron last year with two hundred and seventy million dollars. Because Pai had "talent," he was given new opportunities, and when he failed at those new opportunities he was given still more opportunities . . . because he had "talent." "At Enron, failure--even of the type that ends up on the front page of the *Wall Street Journal*--doesn't necessarily sink a career," Hamel writes, as if that were a good thing. Presumably, companies that want to encourage risk-taking must be willing to tolerate mistakes. Yet if talent is defined as something separate from an employee's actual performance, what use is it, exactly?
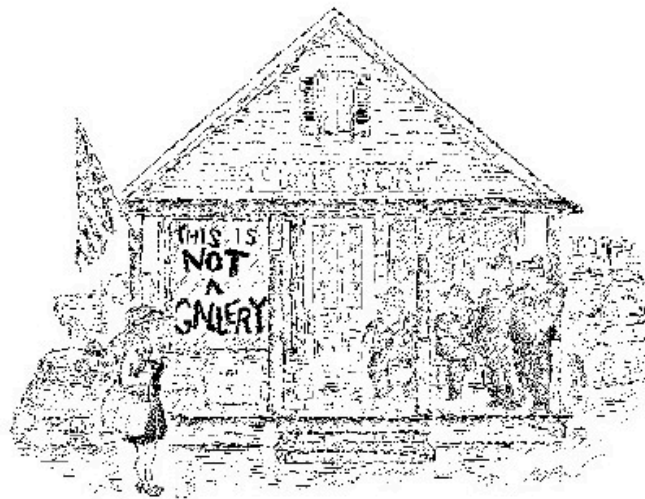
WAHT the War for Talent amounts to is an argument for indulging A employees, for fawning over them. "You need to do everything you can to keep them engaged and satisfied-- even delighted," Michaels, Handfield-Jones, and Axelrod write. "Find out what they would most like to be doing, and shape their career and responsibilities in that direction. Solve any issues that might be pushing them out the door, such as a boss that frustrates them or travel demands that burden them." No company was better at this than Enron. In one oft-told story, Louise Kitchin, a twenty-nine-year-old gas trader in Europe, became convinced that the company ought to develop an online-trading business. She told her boss, and she began working in her spare time on the project, until she had two hundred and fifty people throughout Enron helping her. After six months, Skilling was finally informed. "I was never asked for any capital," Skilling said later. "I was never asked for any people. They had already purchased the servers. They had already started ripping apart the building. They had started legal reviews in twenty-two countries by the time I heard about it." It was, Skilling went on approvingly, "exactly the kind of behavior that will continue to drive this company forward."

Kitchin's qualification for running EnronOnline, it should be pointed out, was not that she was good at it. It was that she wanted to do it, and Enron was a place where stars did whatever they wanted. "Fluid movement is absolutely necessary in our company. And the type of people we hire enforces that," Skilling told the team from McKinsey. "Not only does this system help the excitement level for each manager, it shapes Enron's business in the direction that its managers find most exciting." Here is Skilling again: "If lots of [employees] are flocking to a new business unit, that's a good sign that the opportunity is a good one. . . . If a business unit can't attract people very easily, that's a good sign that it's a business Enron shouldn't be in." You might expect a C.E.O. to say that if a business unit can't attract *customers* very easily that's a good sign it's a business the company shouldn't be in. A company's business is supposed to be shaped in the direction that its managers find most *profitable*. But at Enron the needs of the customers and the shareholders were secondary to the needs of its stars.

A dozen years ago, the psychologists Robert Hogan, Robert Raskin, and Dan Fazzini wrote a brilliant essay called "The Dark Side of Charisma." It argued that flawed managers fall

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Cats Like Felix Like Cats!

You are going to be home late. Don't worry.
The cat knows some good places to eat out.

There's the ally behind the greasy spoon.
Or there's next door.
They're always good for a saucer of milk.
  Or there's Felix cat food.
You can leave it sitting out all day and it
won't spoil.
  The meat in Felix is made into
    crisp little chunks that taste good anytime.
    With a lot of protein and minerals.
    Which is a whole a lot better that
      anything the cat dragged in.
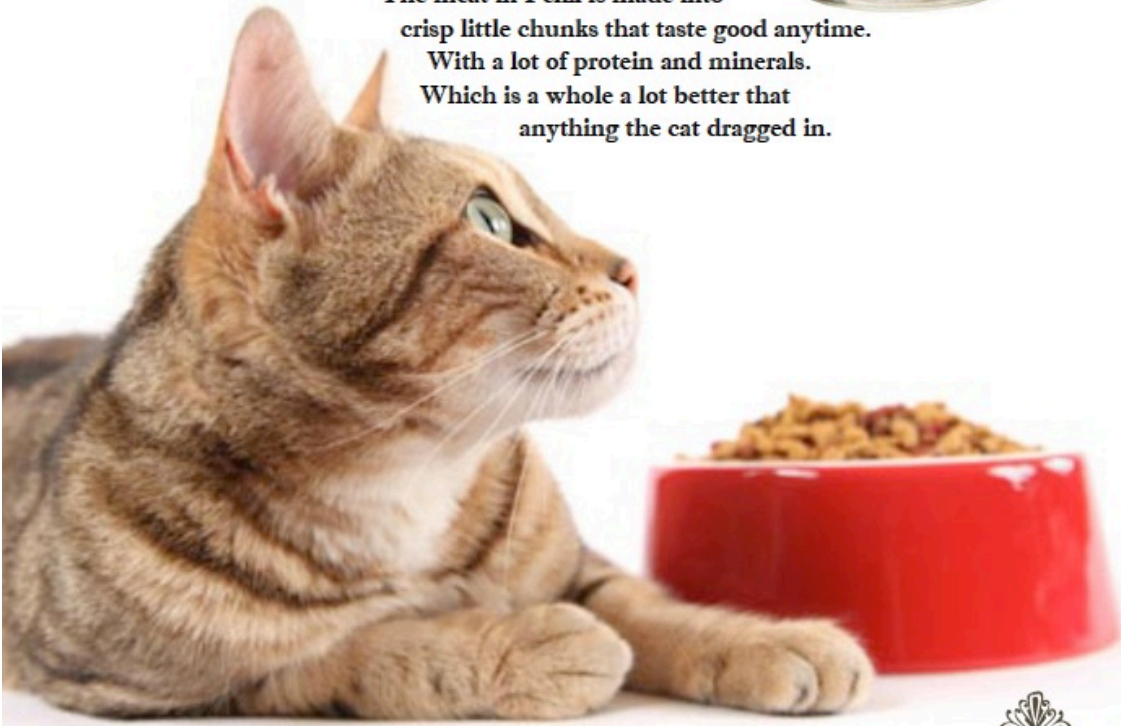
into three types. One is the High Likability Floater, who rises effortlessly in an organization because he never takes any difficult decisions or makes any enemies. Another is the Homme de Ressentiment, who seethes below the surface and plots against his enemies. The most interesting of the three is the Narcissist, whose energy and self-confidence and charm lead him inexorably up the corporate ladder. Narcissists are terrible managers. They resist accepting suggestions, thinking it will make them appear weak, and they don't believe that others have anything useful to tell them. "Narcissists are biased to take more credit for success than is legitimate," Hogan and his co-authors write, and "biased to avoid acknowledging responsibility for their failures and shortcomings for the same reasons that they claim more success than is their due." Moreover:

Narcissists typically make judgments with greater confidence than other people . . . and, because their judgments are rendered with such conviction, other people tend to believe them and the narcissists become disproportionately more influential in group situations. Finally, because of their self-confidence and strong need for recognition, narcissists tend to "self-nominate"; consequently, when a leadership gap appears in a group or organization, the narcissists rush to fill it.

Tyco Corporation and WorldCom

were the Greedy Corporations: they were purely interested in short-term financial gain. Enron was the Narcissistic Corporation--a company that took more credit for success than was legitimate, that did not acknowledge responsibility for its failures, that shrewdly sold the rest of us on its genius, and that substituted self-nomination for disciplined management. At one point in "Leading the Revolution," Hamel tracks down a senior Enron executive, and what he breathlessly recounts--the braggadocio, the self-satisfaction--could be an epitaph for the talent mind-set:

"You cannot control the atoms within a nuclear fusion reaction," said Ken Rice when he was head of Enron Capital and Trade Resources (ECT), America's largest marketer of natural gas and largest buyer and seller of electricity. Adorned in a black T-shirt, blue jeans, and cowboy boots, Rice drew a box on an office whiteboard that pictured his business unit as a nuclear reactor. Little circles in the box represented its "contract originators," the gunslingers charged with doing deals and creating new businesses. Attached to each circle was an arrow. In Rice's diagram the arrows were pointing in all different directions. "We allow people to go in whichever direction that they want to go."

The distinction between the Greedy Corporation and the Narcissistic Corporation matters, because the way we conceive our attainments

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helps determine how we behave. Carol Dweck, a psychologist at Columbia University, has found that people generally hold one of two fairly firm beliefs about their intelligence: they consider it either a fixed trait or something that is malleable and can be developed over time. Five years ago, Dweck did a study at the University of Hong Kong, where all classes are conducted in English. She and her colleagues approached a large group of social-sciences students, told them their English-proficiency scores, and asked them if they wanted to take a course to improve their language skills. One would expect all those who scored poorly to sign up for the remedial course. The University of Hong Kong is a demanding institution, and it is hard to do well in the social sciences without strong English skills. Curiously, however, only the ones who believed in malleable intelligence expressed interest in the class. The students who believed that their intelligence was a fixed trait were so concerned about appearing to be deficient that they preferred to stay home. "Students who hold a fixed view of their intelligence care so much about looking smart that they act dumb," Dweck writes, "for what could be dumber than giving up a chance to learn something that is essential for your own success?"
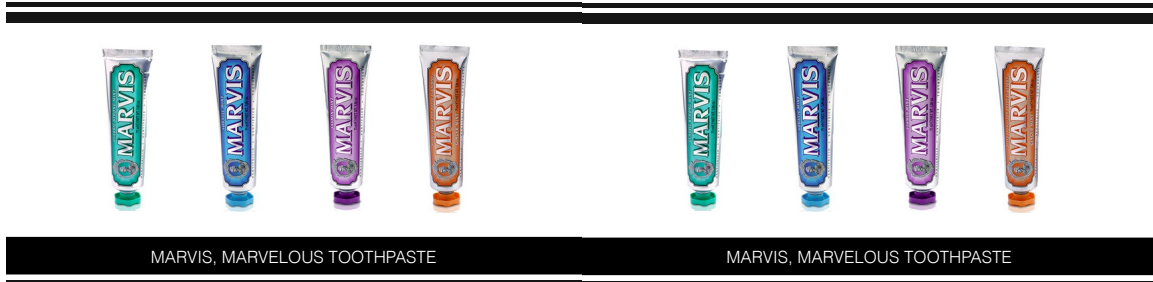
In a similar experiment, Dweck gave a class of preadolescent students a test filled with challenging problems. After they were finished, one group was praised for its effort and another group was praised for its intelligence. Those praised for their intelligence were reluctant to tackle difficult tasks, and their performance on subsequent tests soon began to suffer. Then Dweck asked the children to write a letter to students at another school, describing their experience in the study. She discovered something remarkable: forty per cent of those students who were praised for their intelligence lied about how they had scored on the test, adjusting their grade upward. They weren't naturally deceptive people, and they weren't any less intelligent or self-confident than anyone else. They simply did what people do when they are immersed in an environment that celebrates them solely for their innate "talent." They begin to define themselves by that description, and when times get tough and that self-image is threatened they have difficulty with the consequences. They will not take the remedial course. They will not stand up to investors and the public and admit that they were wrong. They'd sooner lie.

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APPENDIX C: EXPERIMENTAL STIMULI FOR ENDORSER ATTRACTIVENESS

NOTE: Left image shows the attractive endorser ad for Marvis toothpaste. Right image shows the unattractive endorser ad for Marvis toothpaste. Pictures of endorsers have been blacked out to preserve propriety.

APPENDIX D: EXPERIMENTAL STIMULI FOR ARGUMENT STRENGTH

MARVIS, MARVELOUS TOOTHPASTE

Whitening formulas from Italy!

Marvis gently cleans and polishes without any gritty residue.

It has a peppermint flavor that keeps your breath fresh all day long.

This stylish tube comes in 8 different colors in 4 oz.

Marvis offers you a more pleasurable taste sensation than any other brand.

We are celebrating our 50th anniversary,

buy one and get one free!

☒ Note that Marvis contains safe ingredients approved by the FDA.

MARVIS, MARVELOUS TOOTHPASTE

Whitening formulas from England!

Marvis gently cleans and polishes with only a little gritty residue.

It has a peppermint flavor that keeps your breath fresh for hours.

This stylish tube comes in 4 different colors in 2.8 oz.

Marvis offers you just as pleasurable of a taste sensation as other brand.

We are celebrating our 5th anniversary,

buy one and get one 5 percent off!

☒ Note that Marvis contains some ingredients approved by the FDA.

NOTE: Left image shows the strong argument ad for Marvis toothpaste. Right image shows the weak argument ad for Marvis toothpaste.
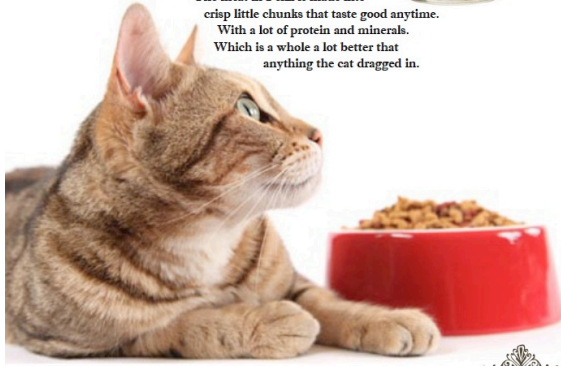
NOTE: Left image shows the first filler ad for Felix, a European brand of cat food. Right image shows the third filler ad for T.O.P, a Korean brand of coffee beverage. The ads for both brands were created for the experiment.

Reading: *The Talent Myth* by Malcolm Gladwell

* answers are underlined

Basic knowledge level
1. Who consulted Enron?
   1) Boston Consulting Group
   2) <u>McKinsey & Company</u>
   3) Bain & Company

2. What are things like *knowing how to manage yourself and others,* and *how to navigate complicated social situations*?
   1) Helicopter Knowledge
   2) Pilot Knowledge
   3) <u>Tacit Knowledge</u>

Intermediate level
3. Which of the following best describes what Enron did based on "the talent mind-set?"
   1) <u>It hired and rewarded the top performers</u>.
   2) It promoted talented employees based on their potential.
   3) It fired the employees considered irresponsible.

4. Which of the following best describes the Narcissist type of manager?
   1) They rise effortlessly in an organization by never taking any risk or making any enemies.
   2) They avoid acknowledging responsibility for their failures and plot against the enemies.
   3) <u>They resist accepting suggestions and are biased to take more credit for success</u>.

In-depth analysis
5. Why did Enron fail in spite of its talent mind-set?
   1) <u>Because they failed to access the employees' abilities to work with people</u>.
   2) Because they failed to conduct candid and probing individual interviews.
   3) Because they failed to objectively evaluate the talent of employees.

6. Given what you read, which of the following statements is the most probable?
   1) Students who hold a malleable view of their intelligence are more likely to believe in their innate talent.
   2) <u>Students who hold a fixed view of their intelligence are more reluctant to take a course to improve their skills</u>.
   3) Students who are praised for their effort are more likely to lie about how they score on the test.

Video: *Good Luck Charlie It's Christmas!* by Disney

Basic knowledge level
1. What did PJ buy?
    1) <u>Christmas swimsuits</u>
    2) Playstation 2
    3) Santa suit

2. What did dad buy?
    1) Camera
    2) <u>Stroller</u>
    3) Lawn mower

Intermediate level
3. What seems to be the most important Christmas tradition to mom?
    1) Tree shaped pancakes on Christmas morning
    2) <u>Star on the tree</u>
    3) Dad's overeating

4. Which of the following is true about Gabe?
    1) The Christmas present for Gabe is *Galaxy of Death One*.
    2) Gabe will succeed in bringing the game system to grandmother's house.
    3) <u>Gabe already figured out where mom hid the presents</u>.

In-depth analysis
5. Why are mom and dad so on edge?
    1) Because they have to take care of four children during the Christmas trip.
    2) <u>Because they have to spend time with grandmother who doesn't like dad</u>.
    3) Because it's the first time spending Christmas at the grandparents' new place in Palm Springs.

6. Why doesn't mom permit her daughter to go to Florida with her friend during the spring break?
    1) <u>Because her daughter is too young</u>.
    2) Because they have to visit their grandmother.
    3) Because her daughter overlooks the importance of having a Christmas tradition.

Cognitive Measure

Free Recall
Please try to list all of the product categories that were advertised in the magazine.

Product Category-cued Recall
Please try to type in the toothpaste brand that was advertised in the magazine.

Product Category-cued Recognition
Please mark the toothpaste brand that was advertised in the magazine.

1) <u>Marvis</u>
2) Botot
3) Solidox

Brand-cued Recognition
An ad for Marvis was included in the advertisements I saw in the magazine.

1) Yes
2) No
3) Don't know

Affective Measure

Whether or not you remember the toothpaste brand that was advertised in the magazine, please answer the following questions.

Overall Attitude
Overall, how appealing to you is the brand as a toothpaste product:

dislike	1	2	3	4	5	6	7	like

Affective Attitude
Please choose the number on each scale that best describes your feelings toward the brand:

hateful	1	2	3	4	5	6	7	love
sad	1	2	3	4	5	6	7	delighted
sorrow	1	2	3	4	5	6	7	joy

Cognitive Attitude
Please choose the number on each scale that best describes the traits or characteristics of the brand:

useless	1	2	3	4	5	6	7	useful
unsafe	1	2	3	4	5	6	7	safe
harmful	1	2	3	4	5	6	7	beneficial

Behavioral Measure

Purchase Intention
If the advertised product were available and affordable, my likelihood of buying it is:

very low   1   2   3   4   5   6   7   very high

Follow-up Questions

Perceived Difficulty
How difficult was the task (media multitasking)?

  very difficult   -3   -2   -1   0   1   2   3   very easy

Feeling
How did the task (media multitasking) make you feel?

   very upset   -3   -2   -1   0   1   2   3   very pleasant

Attention Allocation
During the dual-tasking part of the study, how much of your attention did you devote to each task? The three categories should sum to 100% of your attention.
Percent of your attention to devoted to reading the magazine
Percent of your attention to devoted to watching the video
Percent of your attention to devoted to some unrelated to task
=> Total sum should be 100

Familiarity
Have you ever watched the TV show (*Good Luck Charlie*) used in this study before?
    1)   Yes
    2)   No

Have you ever watched the TV episode (*It's Christmas*) shown in this study?
    1)   Yes
    2)   No

Have you ever read the article (*Talent Myth*) used in this study before?
    1)   Yes
    2)   No

Have you ever seen the toothpaste brand Marvis before?
    1)   Yes
    2)   No

Interest
How much did you enjoy reading the article?

     not at all   -3   -2   -1   0   1   2   3   a great deal

How much did you enjoy watching the TV episode?

     not at all   -3   -2   -1   0   1   2   3   a great deal

Demographic Information

What is your gender?

    1) Female
    2) Male

What is your age?

_____years

Is English your primary language?

    1) Yes
    2) No

If no, how long have you been living in the United States?

_____years and_____months