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# Overcoming Cognitive and Motivational Barriers to Media Literacy: A Dual-Process Approach

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Overcoming Cognitive and Motivational Barriers to Media Literacy:

A Dual-Process Approach

A final project submitted to the Faculty of Claremont Graduate University in partial fulfillment  
of the requirements for the degree of Doctor of Philosophy in Psychology

by

Erica Lynn Rosenthal

Claremont Graduate University

2012

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## APPROVAL OF THE REVIEW COMMITTEE

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## Abstract

Overcoming Cognitive and Motivational Barriers to Media Literacy:

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by

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Claremont Graduate University: 2012

In today's fast-paced, hyper-mediated society, the ability to balance accuracy and efficiency is essential. Media literacy educational programs have arisen to meet this need and proliferated in recent years. Although the practice of media literacy is thriving, its underlying mechanisms are poorly understood and evidence of effectiveness is mixed (e.g., Bergsma & Carney, 2008). A social psychological perspective has the potential to illuminate previously overlooked variables and inform research and practice in this growing field. In particular, whereas media literacy efforts typically emphasize thorough processing of media messages, dual-process theories of persuasion (e.g., Eagly & Chaiken, 1993; Petty & Cacioppo, 1986) suggest this is not always realistic. When motivation or ability is compromised, individuals default to a low-effort processing mode, relying on peripheral cues or heuristics rather than carefully evaluating message arguments. In this mode, media messages can persuade unconsciously.

Using a dual-process approach, the present research investigated how specific barriers to motivation (perceptions of personal invulnerability) and processing ability (emotion-based advertising, environmental distractions) influence the processes of media literacy. Participants

(N = 882) were randomly assigned to 16 conditions in a 2 [vulnerability: demonstrated, control] x 2 [distractions: present, absent] x 2(2) [ad type: informational, emotional; two replicates of each type] between-subjects nested design. The vulnerability manipulation increased distrust in the target ads and reduced their persuasiveness, not through the hypothesized mechanism of heightened perceptions of vulnerability, but mediated by increased counterarguing. Relative to informational ads, emotional ads were judged more persuasive, attractive, similar to personal experience, and elicited greater identification. However, they were also rated less trustworthy than informational ads, suggesting emotional advertising largely bypasses logical decision-making processes. Distraction reduced counterarguing only among those who found the ad relatively unpersuasive.

The results of this research highlight the central role of trust in media literacy processes. Although individuals recognize and distrust emotional forms of advertising, they are nonetheless persuaded by such appeals. Given the sophistication of contemporary advertising techniques and the ubiquity of distractions, the present research suggests new approaches to media literacy are needed, specifically tailored to decision-making under these more realistic media-use conditions.

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Other colleagues from within and beyond the Claremont community have helped shape my academic and professional development over the years. These include Allen Omoto, who has always taken an interest in my pursuits and brought levity to our interactions, my first research advisor, Amy Marcus-Newhall at Scripps College, and my unofficial mentor, Tina Christie, who took me under her wing and introduced me to the evaluation world. My colleagues at the USC Annenberg Norman Lear Center have been a consistent source of support over the last several months, as well as the dissertation boot-camp crew, without whom I would undoubtedly still be slaving away. I was able to accomplish this project within budget thanks to the technological expertise of Ryan Clancey, who custom-built my online survey platform and seamlessly integrated it with Mechanical Turk.

I would not be where I am today without the love and encouragement of my family. My parents, Carol and Nate Rosenthal, instilled in me the value of education, and of being an independent thinker. Moreover, they've always known better than to ask the question most dreaded by doctoral students the world over: "when are you going to be done?" I would also like to thank my brother, Andrew Rosenthal, for picking up the slack for both of us while I continued to defer adulthood. My "POSSLQs"-in-law, Patrick Clancey and Laura Lake, have been incredibly patient and understanding while waiting for me to "make it legal" and provide them with grandchildren. Pat, I only wish I hadn't procrastinated quite so much. In addition, a number of graduate school friends have been an amazing source of social and emotional support over the last several years, including Namrata Mahajan, Stacy Hawkins, Kate LaVelle, and Dreolin Fleischer.

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## CHAPTER ONE: OVERVIEW OF MEDIA LITERACY

### Introduction

A major theme infusing social psychology is the notion that all social behavior is, at its core, goal-driven. Among the most fundamental motives are those of accuracy (the need for reliable information about the world) and efficiency (the need to conserve precious cognitive resources), motives that are frequently in conflict. This tension between accuracy and efficiency motives is particularly evident in how we cope with information overload. On a daily basis, we are bombarded with a relentless stream of media messages, all competing for limited attentional resources. Prior to modern times, the primary challenge was determining what information is needed, and subsequently locating and accessing this information. In recent years, however, the challenge has shifted to keeping apace of this massive glut of information.

An enormous amount of mental energy would be required to thoroughly scrutinize just a fraction of the available information; cognitively, we are simply not equipped to handle all of these messages, and become easily fatigued (Potter, 2004). To avoid fatigue, we often behave as *cognitive misers* (Fiske & Taylor, 1984), conserving mental resources by employing various shortcuts (e.g., heuristics, schemas, and other useful knowledge structures). The increased efficiency afforded by such shortcuts typically comes at a cost in terms of accuracy, however, and may result in over-reliance on stereotypes or biased information-processing, leading to errors of attribution and judgment. In today's fast-paced, hyper-mediated society, the ability to balance accuracy and efficiency motives in sifting through the flood of information, determining what is most pertinent to personal needs and goals, and disregarding what is less relevant (or even harmful) is not merely an important skill, but an essential one.

In addition to the overwhelming increase in the quantity of information, the very nature of information is changing. The boundaries between previously distinct types of information (e.g., advertising, news, entertainment) have become increasingly blurred. With the proliferation of product placement, targeted online ads, viral marketing (advertising messages transmitted via peer-to-peer networks), and video news releases (ads disguised as news segments), advertising has become ubiquitous, and at the same time more difficult to detect. Children typically acquire the ability to distinguish traditional commercials from other types of programming around the age of five and can recognize the persuasive motives inherent in such commercials between age seven and eleven (John, 1999). However, the ability to recognize persuasive intent does not necessarily mean skepticism is applied in an “online” manner (i.e., spontaneously and consistently during routine media use). Little research has addressed the extent to which individuals *of any age* are aware of (and able to guard against) the potential effects of less overt forms of advertising.

### **Is Media Literacy a Solution?**

Within this milieu of information overload and ambiguous boundaries between different forms of information, *media literacy* has arisen as a popular approach to the prevention of harmful media effects (e.g., Bergsma & Carney, 2008). An early summit of media literacy proponents established what has become the most cited definition: “the ability to access, analyze, evaluate, and communicate messages in a variety of forms” (Aufderheide, 1993<sup>1</sup>). However, the construct of media literacy remains elusive; definitions abound in the literature, and the precise meaning and purpose of media literacy has long been a source of contention among scholars, practitioners, and advocates (e.g., Hobbs, 1998). The term is alternately used to refer to a state of

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<sup>1</sup> This exact quote is not actually found in Aufderheide, 1993. Rather, this is a paraphrasing of the original source material, which has since become a consensual definition, repeated as cited here throughout the media literacy literature and always attributed to Aufderheide.

knowledge (e.g., awareness of the forces behind media production), a state of heightened skepticism regarding mass media messages (often specifically regarding the motives of their creators), a set of competencies (i.e., skills for the deconstruction and critical analysis of media messages), and a type of educational approach or intervention (i.e., efforts to cultivate such knowledge and skills).

Some view media literacy as an extension of traditional (i.e., language) literacy, as both involve the skills of deconstructing and constructing (i.e., reading and writing) texts within the conventions of the particular medium. The parallels between media literacy and traditional literacy may end there, however. An individual who can read words off a page and form grammatical sentences would generally be considered literate, but someone can be technologically savvy, highly skilled at accessing needed information or communicating information to others, and nonetheless not media literate. Most conceptualizations of media literacy require some degree of critical thinking, analysis, or reflection about the content, sources, and values inherent in media messages, beyond simple comprehension of these messages. Moreover, traditional literacy is generally viewed as a stable trait; once the relevant knowledge and skills have been acquired, an individual is and always will be literate (barring a catastrophic brain injury). Media literacy is often treated in a similar manner, though the activation of media literacy skills is likely more fluid and context dependent. Some scholars (e.g., Austin, Miller, Silva, et al., 2002; Austin, Pinkleton, & Funabiki, 2007) view media literacy not as a stable trait, but rather, an iterative decision-making process (or set of processes) in relation to media messages.<sup>2</sup>

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<sup>2</sup> The present research follows Austin and colleagues' (e.g., Austin et al., 2002; 2007) conceptualization of media literacy as a process. However, in Chapter One, the term 'media literacy' refers primarily to its practice (i.e., educational programs and interventions) unless otherwise specified.

Media literacy is frequently discussed in the context of health promotion and prevention (e.g., substance use, violence, disordered eating), but the rationale for a media literate public transcends behavioral health concerns. In elementary and secondary education, media literacy is among the core “21st century skills” deemed critical to success in the emerging global economy (Partnership for 21st Century Skills, 2011). According to some advocates (e.g., McBrien, 2005; McCannon, 2009; Schwarz, 2005a), media literacy is vital to the ability to operate as skeptical consumers, autonomous thinkers, and responsible, informed citizens in a democratic society. This argument is particularly compelling in light of the U.S. Supreme Court’s decision to eliminate previously imposed campaign finance limits, giving corporations an unprecedented ability to influence the democratic process through campaign advertising (*Citizens United v. Federal Election Commission*, 2010).

Although the practice of media literacy is thriving, research has lagged behind. Several scholars have noted the relative paucity of theoretically informed and methodologically rigorous research on media literacy, as well as inconsistent evidence of its effectiveness as an intervention strategy (e.g., Bergsma & Carney, 2008; Eagle, 2007; McCannon, 2009). As a result, educators and other practitioners (e.g., curriculum developers) have been attempting to teach media literacy without a well-validated and coherent evidence-base regarding what works, and often with limited theoretical rationale for their efforts. As a relatively young and theoretically underdeveloped field, media literacy research is ripe for the integration of fresh perspectives. This paper focuses on the potential of social psychological theory, particularly in the areas of persuasion and information-processing, to challenge the validity of various assumptions underlying the study and practice of media literacy, illuminate new research directions, and inform media literacy efforts in the twenty-first century.

The remainder of this chapter provides a brief overview of media literacy practice, as well as existing theory and research on media literacy. Chapter Two discusses the potential of persuasion theories to address the limitations of existing media literacy approaches, and concludes with an overview of the current research. The methodology and results from each of three pilot studies are described in Chapter Three. Chapter Four presents the hypotheses and methods for the main experimental study, followed by the results in Chapter Five. Finally, the paper concludes with a discussion of findings from the main study, along with the scholarly and practical implications of this research and future directions for the study of media literacy (Chapter Six).

### **Media Literacy in Practice**

Dating back to the advent of written language, periods of alarm have often greeted whatever new media were, at the time, viewed as a potential threat to the status quo. The contemporary era of media alarmism began in the 1950s, as concern grew over the emerging medium of television (Schwarz, 2005b). At the time, little was known about how TV viewing might affect people's attitudes and behavior. Driven by research into the effects of TV exposure during the 1960s, media literacy education began to emerge in the U.S. in the 1970s, under the moniker of *critical viewing skills* (Tyner, 1998).<sup>3</sup> Critical viewing skills were geared exclusively toward television, with the primary objective of protecting children from the presumed harmful effects of such exposure (particularly exposure to violent imagery). With funding from the U.S. Department of Education, critical viewing skills curricula thrived in the latter part of the 70s and early 80s. The movement was short lived, however, as the "back-to-basics" reform movement

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<sup>3</sup> Media literacy emerged substantially earlier in other countries, including the United Kingdom, Australia, Norway, and Canada. Media literacy has been taught continuously in British schools since the 1960s, and the critical viewing skills movement in the U.S. drew momentum from similar initiatives in Britain and Canada.



(e.g., National Commission on Excellence in Education, 1983) introduced statewide competency testing, and critical viewing skills education began to be seen as a luxury.

After being driven underground for a period of time, media literacy education reemerged in the 1990s as a grassroots movement, driven by individual teachers, often operating without administrative support (Schechter, 1997). Today, all fifty states have media literacy concepts included in their curricular standards (Kubey & Baker, 1999), though these standards are often so vague that it is difficult to determine whether objectives are being met. To meet this need, the Center for Media Literacy has proposed a standard set of learning objectives known as the “five core concepts” of media literacy (Thoman & Jolls, n.d.). These concepts have been widely adopted in the U.S., and provide much of the basis for media literacy interventions:

- 1) All media messages are constructed
- 2) Media messages are created using a creative language with its own rules
- 3) Different people experience the same message differently
- 4) Media have embedded values and points of view
- 5) Most media messages are constructed to gain profit and/or power.

Although the majority of experts advocate the integration of media literacy concepts across the curriculum (e.g., Hobbs, 1998), it is most commonly taught as a brief health education unit, or in vocational classes focused on media production.

### **Philosophical Approaches**

Given its far-reaching applications, from education to public health to civic engagement, media literacy draws scholars and advocates from fields as diverse as communications, journalism, fine arts, psychology, sociology, cultural studies, and literary criticism, among others. This transdisciplinary nature is simultaneously one of the field’s greatest strengths and foremost

challenges, as media literacy's varied constituencies continue to debate its purpose, approaches to its practice, and methods of study (e.g., Hobbs, 1998).

In recent years, two major philosophical orientations toward media literacy have emerged. The first, exemplified by the National Association for Media Literacy Education (NAMLE), views media literacy as critical thinking about media, and focuses on examining and challenging the methods and messages of mass media. The second, activism-oriented approach began as a splinter group within NAMLE (then known as AMLA, the American Media Literacy Association), and was formalized in 2002 with the founding of the Action Coalition for Media Education (ACME). Followers of ACME's approach believe critical thinking alone is not sufficient, and advocate collective action *against* mass media (e.g., "kill your TV"). ACME rejects media industry contributions to media literacy efforts (e.g., funding, partnerships), on the grounds that corporate involvement often operates as a smokescreen to deflect criticism, and ultimately co-opts the movement. Critics of ACME's orientation argue that such a protectionist approach leaves little room for obtaining pleasure through media consumption, and fosters unquestioning cynicism rather than healthy skepticism (e.g., Rogow, 2005). However, the activist approach often promotes student media production as a central aspect of media literacy, enabling students to challenge mass media representations through their own alternative constructions (and simultaneously develop valuable technical and creative skills).

### **Implementation Challenges**

Although media literacy has been successfully integrated into public education in several other countries (e.g., the United Kingdom, Australia, Norway, and Canada), the U.S. educational system poses unique challenges. Rather than a central administrative entity, the U.S. has over 16,000 relatively autonomous public school districts (Center for Media Literacy, n.d.), each of

which determines its own curriculum in accordance with state standards. As a result, implementation of media literacy initiatives on a national level would be exceedingly difficult. Moreover, the current educational climate in the U.S., characterized by an emphasis on performance and assessment, is less than ideal for comprehensive media literacy education. The constant threat of funding cuts has motivated many teachers to shift to a pedagogical approach often described as *teaching to the test* (Stecher & Hamilton, 2002). This teacher-focused mode of instruction is the antithesis of the inquiry-based, critical pedagogical approach that underpins much of the media literacy movement. Additionally, with an unprecedented focus on quantification and evidence-based practice, rigorous research on media literacy is limited, and findings are mixed. The challenges of implementing media literacy educational programs are only exacerbated during times of economic uncertainty. As resources become scarce, subjects viewed as supplementary, and particularly those lacking quantifiable student outcomes, are typically the first to go (Schwarz, 2005a). As such, media literacy efforts are often abandoned in favor of more traditional subjects.

These challenges do not imply media literacy efforts are futile. Quite the opposite, they underscore the need for more (and more rigorous) research on media literacy's effectiveness, as well as the mechanisms through which it might operate. According to Chakroff and Nathanson (2008, p. 568):

In order for these programs to be taken seriously by the people who have the power and money to implement them, researchers must provide more concrete answers to what works and what does not. That way, those in charge of curriculum decisions are able to make more informed decisions.

The growing research literature is beginning to allow for some tentative answers to these questions. This literature is still quite small, however, and limited by various methodological and theoretical weaknesses.

### **Media Literacy Theory and Research**

In a 2007 address on the status of media literacy research, Hobbs observed that while media literacy practice has reached its proverbial childhood, the state of knowledge in the field is “still in its infancy.” A 2009 review of the literature (McCannon) counted fewer than one hundred media literacy studies, while another (Martens, 2010) placed the number of conceptual or empirical manuscripts at 165, compared to some ten-thousand studies addressing media effects (Potter & Riddle, 2007).

Among the most consistent findings in media literacy research are those pertaining to the acquisition of media literacy knowledge. Interventions have been found to increase knowledge around production techniques and the ability to distinguish between commercials and television programming (e.g., Rapaczynski, Singer, & Singer, 1982; Singer, Zuckerman, & Singer, 1980), as well as between fantasy and reality (e.g., Doolittle, 1980). Researchers (e.g., Hobbs & Frost, 1999, 2003; Quin & McMahon, 1995) have also documented improvements in students’ ability to recognize point of view, bias, target audience, production techniques, and advertising motives and subtexts. There is little evidence, however, that media literacy knowledge translates into long-term changes in attitudes and behaviors. This review focuses on media literacy research *directly* addressing attitudinal or behavioral outcomes, rather than knowledge as a hypothetical antecedent to attitudes and behaviors.

When researchers address attitudinal or behavioral outcomes, those relating to health promotion are frequently targeted. A systematic review (Bergsma & Carney, 2008) of health-

promoting media literacy interventions between 1990 and 2006 uncovered twenty-eight that met the study's inclusion criteria.<sup>4</sup> The most common were those addressing issues related to nutrition or disordered eating (including body image), violence prevention, and substance abuse prevention, the majority of which were delivered in classrooms settings. Of the studies included in the review, more than half were aimed at children in grade six and under, with the remainder targeting adolescents or college students. The results of Bergsma and Carney's analysis suggest longer interventions tend to be more effective than short (e.g., single-session) interventions, though there are exceptions (e.g., Austin & Johnson, 1997). Interventions that covered all five of the Center for Media Literacy's core concepts or provided information about the specific health issue being addressed were also more likely to be effective.

### **Theoretical and Methodological Limitations**

Research and evaluation of media literacy programs is becoming more common, but rigorous studies still remain the exception (Brown, 2006). Published reports often lack a thorough description of the sample, study design, intervention, or measures (Bergsma & Carney, 2008), rendering any generalizations about methodology tenuous. Moreover, evaluations of existing curricula are often inadequately controlled, or confounded by the inclusion of several different components in the experimental intervention. Thus, when media literacy programs are ineffective, pinpointing why can be difficult, and even when they are effective, it is not always possible to identify which elements of the intervention were responsible. Given the predominantly school-based nature of media literacy research, random assignment is often

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<sup>4</sup> The criteria for inclusion Bergsma and Carney's (2008) systematic review were as follows: (1) published in English between 1990 and July 2006; (2) peer reviewed; (3) sample, design, intervention, measures, and analysis were described; (4) included an experimental (in reality, quasi-experimental) health-promoting media literacy intervention of at least 25 minutes; and (5) focused primarily on teaching media literacy, operationalized as one or more of four key competencies (access, analyze, evaluate, create). Because several studies had more than one intervention that met the inclusion criteria, the 23 studies included in the systematic review comprised a total of 28 interventions.

unfeasible. As a result, the research is typically survey-based and often qualitative in nature (e.g., case studies). Quantitative research on media literacy is frequently plagued by small samples and inconsistencies in implementation across classrooms. In most cases, the researchers themselves (rather than regular classroom teachers) implement the interventions.

The objectives of media literacy programs are not always clearly defined or phrased in a manner conducive to measurement. Such objectives often refer vaguely to enhanced critical thinking skills or heightened awareness of media production techniques. Researchers typically assess knowledge regarding the information provided as part of the curriculum, but do not attempt to measure the extent to which individuals are applying this knowledge in their daily lives. Behavior is rarely assessed directly; rather, attitudinal measures are often assessed as a proxy for behavioral outcomes of interest (Cantor & Wilson, 2003). As a result, evidence of behavior change is weak. The vast majority of studies have been short in duration, providing little insight into what long-term outcomes might be expected from media literacy interventions. Finally, there has been very little replication. In sum, whereas scattershot approaches to media literacy are unlikely to be effective, the growing literature suggests theory-driven and carefully implemented interventions can produce a variety of positive outcomes (for reviews, see e.g., Bergsma & Carney, 2008; McCannon, 2009).

### **The Message Interpretation Process Model**

The leading theoretical model of media literacy—and the one with the most empirical support—is the Message Interpretation Process (MIP) Model (Austin & Meili, 1994; Austin, Roberts, & Nass, 1990). The MIP model elucidates a sequential process through which cognitive and affective variables influence decision-making when individuals encounter media messages (Figure 1). According to the model, this decision-making process can operate through a high-

effort logical (i.e., cognitive) route, a low-effort emotional (i.e., affective) route, or both routes simultaneously.

**Basic Elements of the Message Interpretation Process Model**

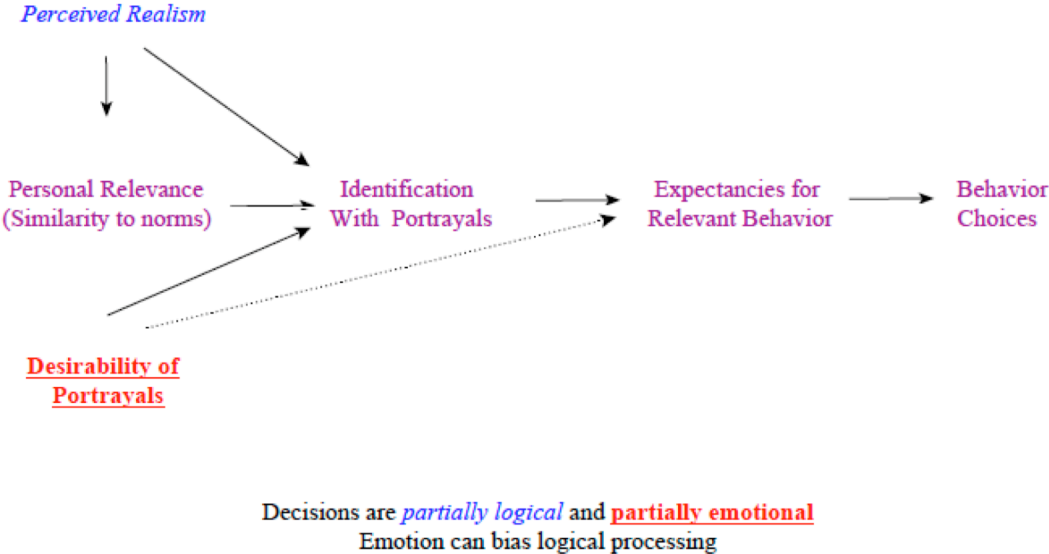


Figure 1. Elements of the Message Interpretation Process Model. Logical (e.g., perceived realism) and emotional (e.g., desirability) variables contribute to later decision-making variables in the theoretical model (e.g., identification with media portrayals, expectancies regarding relevant behaviors, behavior choices). From “MIPmodel,” by E. W. Austin, (n.d.), retrieved from <http://www.wsu.edu/~eaustin/research.htm>.

First, when faced with a media message, individuals evaluate the perceived realism and perceived similarity (to personal norms and experience) of a media portrayal. These are logical appraisals. The more realistic (i.e., like most people) and similar (i.e., reflective of personal experience or that of close others) the portrayal is perceived to be, the more likely individuals will be to identify with the portrayal. At the same time, identification can be influenced by the desirability (i.e., attractiveness) of the portrayal (an emotional appraisal), either alone or in interaction with perceived similarity. The more individuals identify with a portrayal, the more

they will internalize the message and desire to emulate the portrayal. Finally, consistent with Bandura's social cognitive theory (1986), positive expectancies lead to behavioral intentions, self-efficacy, and ultimately predict analogous behavior.

According to the model, desirability can enter into the decision making process at any point, and the logical and emotional routes may operate in conjunction or in conflict. For example, one may perceive a portrayal to be unrealistic but nonetheless find it highly desirable or attractive. Because the emotional route requires less cognitive effort, emotion can easily overwhelm and bias logical responses to messages. However, individuals can acquire skills to enable them to refute media messages, even highly desirable ones. Austin and colleagues propose media literacy interventions can be targeted to virtually any step in the process, resulting in individuals perceiving portrayals as less realistic, less normative, less desirable, and less rewarding (i.e., reduced positive expectancies). They have accumulated substantial evidence in support of the MIP model with regard to adolescent health behaviors, including alcohol (e.g., Austin & Johnson, 1997; Austin, Chen, & Grube, 2006; Austin, Miller, Silva et al., 2002), tobacco (e.g., Austin, Pinkleton, & Funabiki, 2007; Austin, Pinkleton, Hust, & Cohen, 2005), and sexual behavior (e.g., Pinkleton, Austin, Cohen, Chen, & Fitzgerald, 2008).

Austin and colleagues' research within the MIP model framework has uncovered a number of interesting findings with regard to the mechanisms through which media literacy operates. Austin and Johnson (1997) suggest understanding of persuasive intent is a necessary but not sufficient condition for reductions in identification with media portrayals. Persuasion-related knowledge works in conjunction with perceptions of desirability and (to a lesser extent) similarity. The construct of skepticism appears to have affective and cognitive dimensions, represented by trust and perceived realism, respectively (Austin et al., 2002). As a result,



activating skepticism works through logical and emotional processes in somewhat different ways; enhancing cognitive awareness (i.e., processing) strengthens the logical decision-making route, whereas activating negative affect (i.e., distrust) enhances the emotional route. Austin and colleagues (2007) investigated a phenomenon in previous MIP findings that they term the “desirability paradox.” This refers to evidence that media literacy training often decreases beliefs associated with risky behaviors, while increasing ratings on measures of desirability. It appears that increased media literacy alters the way individuals conceptualize desirability. Measures of desirability typically tap into positive affect toward media portrayals. After receiving media literacy training, however, these desirability measures reflect participants’ awareness that advertisers use certain tactics *for the purpose* of crafting desirable portrayals. That is, an increased level of media literacy with regard to affective means of persuasion is associated with higher ratings of desirability. It appears that this heightened awareness cancels out whatever effect positive affect might otherwise have on the decision-making process. Nonetheless, this research raises key issues related to measurement of media literacy constructs.

### **Other Evidence of Effectiveness**

Beyond Austin and colleagues’ research on the MIP model, there is growing evidence of the effectiveness of media literacy programs in relation to attitudinal and behavioral outcomes, as well as factors that contribute to effective media literacy interventions.

**Body image and disordered eating.** Several studies have evaluated the effects of media literacy programs targeting body image and disordered eating. Although there is little evidence that such programs impact eating behaviors, they can affect self-esteem, life-skills, and awareness of media messages promoting the thin ideal (Littleton & Ollendick, 2003). A media literacy program of the National Eating Disorders Association has been effective in promoting

adolescent girls' sense of empowerment and self-esteem, as well as reducing internalization of the thin ideal and desire to be thin (Piran, Levine, & Irving, 2000). Numerous studies have documented reductions in the perceived realism and desirability of media portrayals representing the thin ideal (Irving & Berel, 2001; Irving, DuPen, & Berel, 1998), internalization of thin beauty standards (Irving, DuPen, & Berel), weight concerns (Wade, Davidson, & O'Dea, 2003), and intentions to diet (Irving & Berel). Research by Neumark-Sztainer, Wall, Story, and Perry (2003) suggests that among the various attitudinal variables typically measured, only weight concerns are associated with disordered eating behaviors.

**Violence prevention.** Media literacy approaches have been used extensively in the domain of violence prevention. Voojjs and Van der Voort (1993) found reductions in approval of characters' violent actions and greater appreciation of the consequences of violence among children who received media literacy training. Huesmann, Eron, Klein, Brice, and Fischer (1983) implemented an intervention aimed at altering cognitions about media violence (e.g., realism of television violence, acceptability of aggressive behavior). An intervention designed to motivate participants not to encode, store, retrieve, or employ aggressive behaviors resulted in less positive attitudes toward aggression and less aggressive behavior (relative to the control group), and effectively eliminated the correlation between exposure to television violence and aggressive behavior among participants in the experimental condition.

An important caveat to the use of media literacy techniques in violence prevention is the prevalence of counterintuitive "boomerang effects," or increases in the undesirable attitude or behavior being targeted by the intervention (Cantor & Wilson, 2003). Essentially, the use of violent media clips, if not carefully implemented, can reinforce negative attitudes and behaviors rather than challenging them. Byrne (2009) proposed that boomerang effects occur when an

intervention draws attention to violent behavior, without promoting the level of active processing necessary to challenge these messages. Byrne's research lends support to the notion that knowledge of media literacy concepts is not sufficient; individuals must also have the motivation to *apply* this knowledge (e.g., Austin et al., 2007).

**Sexual behavior.** Although there do appear to be media literacy interventions targeting sexual health risks, published research on their effectiveness is virtually nonexistent. Pinkleton and colleagues (2008) examined a peer-led media literacy intervention for middle school students, using the MIP model framework. The intervention increased awareness of myths about sex and self-efficacy to delay sexual activity, and reduced positive expectancies, desirability of sexual media portrayals, and estimates of peers' sexual activity. At the time of their review, Bergsma and Carney (2008) were unable to locate any peer-reviewed studies of such interventions (because the Pinkleton et al. study was published in 2008, it did not meet their criteria for inclusion). They suggest political constraints and human subjects concerns pose a significant barrier to intervention research on adolescent sexual health.

**Long-term outcomes.** Although the short-term impact of media literacy is well documented, little research has examined the extent to which effects are maintained beyond an immediate post-test. According to Byrne (2009), for a media literacy intervention to be meaningful, its effects should last more than a few days. A small number of studies have found evidence of long-term effects in the domain of violence prevention. Huesmann and colleagues (1983) found an initial reduction in aggression that continued for four months after the intervention. Similarly, Voojls and Van der Voort's (1993) experimental group participants maintained changes in factual knowledge and perceived realism of television portrayals two years after the intervention.

**Parental mediation.** Media literacy education is not restricted to school-based settings. In recent years, more research has begun to focus on the role of parents (or other caregivers) in developing children’s media literacy. In addition to co-viewing (i.e., watching television together), caregivers have a variety of *mediation strategies* at their disposal for monitoring or controlling children’s media use. Whereas restrictive mediation refers to rules regarding content or time spent with media, active mediation generally includes posing questions or sparking discussion before, during, or after media consumption. There is evidence that such “media literacy moments” can encourage more active processing. Nathanson and Cantor (2000) found that when children were asked, prior to a cartoon clip, to consider the feelings of the victim, they were more likely to identify with the victim and less likely to perceive the violence as justified. Buijzen and Valkenburg (2005) found active mediation techniques to be more effective than restrictive methods at reducing children’s toy requests, as well as parent-child conflict. A number of studies have suggested that restrictive mediation alone may backfire by making young people more likely to seek out the “forbidden” content (Cantor, Harrison, & Nathanson, 1997; Nathanson, 2002).

Evaluative mediation is a type of active mediation wherein caregivers express disapproval of specific characters or their actions (e.g., negative commentary on violent characters or actions). Factual mediation, on the other hand, involves presenting information about media production techniques. In a direct comparison of evaluative versus factual mediation strategies, Nathanson (2004) found the former to be more effective, particularly with younger children. In fact, providing only factual information actually increased negative effects in some cases. However, research suggests that while evaluative mediation is highly effective with young children (ages 5 to 8), it can backfire with older children (ages 9-12), who may find such

approaches condescending (Nathanson & Yang, 2003). Across all age groups, evaluative mediation appears to be most effective with heavy consumers of violent media. Whereas criticism of violent media reduces aggressive attitudes and behaviors, praising these characters promotes such attitudes and behaviors. Moreover, lack of commentary (or even neutral comments) has an effect similar to praise, seemingly by conveying tacit approval of the behaviors portrayed (e.g., Nathanson, 1999). These findings suggest that like restrictive mediation, co-viewing (or even nonjudgmental active mediation) alone may not be sufficient.

## **CHAPTER TWO:**

### **A SOCIAL PSYCHOLOGICAL APPROACH TO MEDIA LITERACY**

A social psychological approach, emphasizing the complex interplay between individual dispositions and situational contingencies, is particularly well suited to the study of media literacy. Media are not just something to be consumed; they permeate virtually every aspect of contemporary life. Interactions with media are uniquely shaped by individual beliefs, attitudes, motives, abilities, and experiences. Although the MIP model draws upon elements of several social psychological theories (e.g., social cognitive theory, expectancy theories, dual-process theories), the model stops short of examining the interactions between individual characteristics and situational (i.e., contextual) factors, as is typical of social psychological research. Such an approach could shed light on how the logical and emotional routes of decision-making interact, under what conditions each type of decision-making dominates, when emotion would be expected to overwhelm logic, and how, if at all, this can be overcome.

One area in which social psychological theory could be particularly informative is that of information-processing. Traditionally, media literacy initiatives emphasize critical evaluation and thorough analysis of media messages, either as the ultimate goal or an intermediate goal leading to desired outcomes. Dual-process theories such as the elaboration likelihood model (ELM; Petty & Cacioppo, 1986) and the heuristic-systematic model (HSM; Eagly & Chaiken, 1993) suggest this high-effort type of processing is not always realistic or possible, however, as it requires high levels of both motivation and processing ability. What this means for media literacy is that traditional approaches may be ineffective under conditions of low motivation or compromised processing ability.

## Dual-Process Theories

Although the precise mechanisms differ, ELM, HSM, and related dual-process theories propose persuasion can occur through either a high-effort central (or systematic) route in which message arguments are thoroughly examined, or a low-effort peripheral (or heuristic) route in which the message recipient relies on potentially misleading cues such as the perceived expertise of the source or the length of message arguments. When both motivation and processing ability are high, individuals are more likely to engage in central route processing. This is not always possible, however. For example, young children lack the cognitive capacity to process messages through the central route (Livingstone & Helsper, 2006), and as a result, may be more vulnerable to persuasion via peripheral processes. Those with the requisite cognitive capacity may still default to peripheral (i.e., unconscious, automatic, implicit) processing under certain conditions, particularly when motivation is lacking or ability is compromised. In this mode, media messages can “fly under the radar” of conscious awareness and persuade unconsciously. Although ELM and HSM have many features in common, their predictions differ with regard to how high- and low-effort processing modes may co-occur. ELM proposes a tradeoff; as one process increases, the other necessarily decreases. HSM, on the other hand, predicts that heuristic processing can occur in tandem with systematic processing. According to HSM, at low levels of motivation or ability, heuristic processing dominates. As motivation and ability increase, systematic processes are engaged, but heuristic processing continues, with no tradeoff. HSM suggests motivation can even increase heuristic processing, by enhancing the accessibility of related heuristic cues.

Factors known to influence motivation include the perceived personal relevance of the message, deprivation of control, or the expectation that one will be discussing the message topic in the near future. Ability is generally most influenced by recipient variables and those related to

the persuasion context (e.g., distraction, mood, message modality), though the same variable can have multiple roles at different points in the persuasion process, or depending on the level of motivation and ability. Researchers working in the dual-process paradigm typically experimentally manipulate characteristics of the message source, content, target (i.e., recipient), or context. This approach enables researchers to examine how these variables affect persuasion-related outcomes, both alone and in interaction. The present research focused on factors related to the message content, persuasion context, and the message recipient; as such, source-related variables will not be discussed.

### **Persuasion Context**

Among the most frequently investigated contextual variables in dual-process research is distraction. Defending oneself against media influence requires self-regulatory resources (Baumeister & Heatherton, 1996). Thus, automatic processing is particularly likely under conditions of fatigue, or when these resources are being otherwise utilized (e.g., when multitasking, such as watching TV while studying or talking on the phone). The cognitive response approach to persuasion (e.g., Greenwald, 1968) has provided much of the theoretical framework for studying the effects of distraction. This approach holds that individuals spontaneously generate cognitive responses (i.e., thoughts) during a persuasive message. These responses may be favorable or unfavorable (e.g., counterarguments) with regard to the message. Importantly, it not the message, *per se*, but the individual's cognitive responses to the message that mediate persuasive outcomes. In general, the more positive one's cognitive response to a message, the more persuasive the message will be.

The cognitive response approach represents a major departure from the earlier message-learning model of persuasion (Hovland, Janis, & Kelley, 1953), which placed the emphasis on



the message itself (i.e., who says what to whom, and with what effect). From a pure message learning perspective, distraction would be expected to reduce persuasion by interfering with reception of the message. Research within the cognitive response framework (e.g., Petty & Brock, 1981; Petty, Wells, & Brock, 1976), however, has shown that the effects of distraction are often much more complex, and depend on the quality (i.e., strength) of message arguments. By disrupting central route processing, distraction interferes with whatever the dominant cognitive response to the message would be under ideal conditions. That is, when the message is weak, distraction reduces the ability to counterargue, leading to increased persuasion. However, when the argument is strong, distraction interferes with favorable thoughts, reducing its persuasive impact.

Since its heyday in the 1980s, little social psychological research has directly addressed the effects of distraction in the context of persuasive media messages. However, a 2008 RAND Corporation study (Collins) investigated the impact of “media multitasking” on adolescents’ sexual attitudes and behavior. Those who watched more sexual content on TV were more likely to lose their virginity in the subsequent year, but the relationship was particularly pronounced among those who reported being online while watching TV. Although Collins did not specifically examine the mediating mechanisms, the results were interpreted from a cognitive response perspective. In essence, the distraction associated with multitasking interfered with adolescents’ ability to actively challenge (i.e., counterargue) potentially harmful or inaccurate media messages regarding sexuality. As a result, these messages were processed in a peripheral manner and thereby exerted profound effects on beliefs, attitudes, and behavior.

## Message Content

In addition to contextual variables such as distraction, the content or nature of media messages themselves can pose a barrier to processing ability. Whereas research on persuasion and resistance typically utilizes *overtly* persuasive messages, media messages tend to operate on a more subtle level, cultivating predispositions, beliefs, and values through repeated exposure (Gerbner, Gross, Morgan, Signorielli, & Shanahan, 2002). Many media messages, including contemporary forms of advertising, may not be easily recognizable as persuasive attempts, and as a result, can bypass traditional defenses and capitalize on automatic processes.

Even in the case of advertising, persuasive intent can be exceedingly difficult to detect, as the lines between advertising, entertainment, news, and other types of messages have become increasingly blurred. The advertising industry continues to venture into new territory with the use of “stealth marketing” tactics. These include embedded advertising in film and television (previously known as product placement), brand integration (developing storylines around a particular brand or product), celebrity endorsements, “advergames” (advertising messages in game format, primarily targeting children), video news releases (advertising messages in the format of news segments, sometimes delivered as part of television news programming), and viral marketing (advertising messages transmitted peer-to-peer, e.g., via web-based social networks). Marketing researchers utilize cutting-edge techniques such as implicit measures and neuroscientific methods to measure affective responses to brands (e.g., Innerscope Research, 2008). Consumer research suggests persuasion via peripheral processes can be highly effective, particularly with children who have not yet developed the cognitive ability to process media messages in a systematic manner (Livingstone & Helsper, 2006).

Within this brave new world of advertising, advertising that operates primarily at the emotional level (i.e., through affective mechanisms), rather than through a rational consideration of costs and benefits, is particularly insidious (Harris, Brownell, & Bargh, 2009). The advertising industry draws a distinction between “informational” and “emotional” forms of marketing (Innerscope Research, 2008). Whereas informational marketing operates through explicit processes (e.g., rational consideration of the product’s costs and benefits), emotional marketing works primarily by establishing positive brand inferences, the effects of which are largely automatic and unconscious. Marketers make no secret of their use of these tactics, sometimes even describing the development of brand associations in children as *brand imprinting* (Urbick, 2008). A prominent market research company advised its clients as follows:

The early to mid-teenage years are ones where brands need to be investing in brand building...the initial connection and affinity to a brand is made on an emotional level – and that when purchase decision time comes nearer, the young consumer is looking for affirmation for the emotional choice they have already solidified (Harris Interactive, 2004, p. 4).

Thus far, research suggests emotional approaches to advertising are more effective than informational approaches, particularly under conditions of low motivation or ability (e.g., Bargh, 2002; Harris, Brownell, & Bargh, 2009). In a study by Morris, Woo, Geason, and Kim (2002), emotional responses accounted for more than twice the variability in brand interest and purchase intent, relative to explicit brand attitudes. Repeated exposure to emotional appeals may exacerbate these automatic effects. For example, if brand image is conceptualized as a network of associations (Keller, 1993), advertisements reinforce these associations through repetition, even under low-involvement viewing conditions (Heath, 2000). According to Nairn and Fine

(2008), traditional approaches to media literacy are likely to be ineffective in relation to advertising formats utilizing automatic or implicit persuasion processes, as these forms of advertising have “no propositional information that the [individual] can critically assess and evaluate in light of knowledge of the selling or persuasive intent of the message” (p. 454).

### **Message Recipient**

Contextual and message-related variables can interfere with thorough processing, but characteristics of the message recipient may be just as important. Ability is a necessary, but not sufficient, condition for high-effort (i.e., elaborative or systematic) processing. In the absence of motivation, ability will be of little use. Research suggests the perception of undue manipulative intent can serve as a powerful motivator in the context of media messages (e.g., Campbell, 1995). In general, individuals reject information they perceive as deceptive or unfairly manipulative. It stands to reason, however, that the perception of manipulative intent is only influential to the extent that one perceives oneself to be *vulnerable* to manipulation. Individuals who understand how mass media production techniques are used to manipulate and persuade would generally be considered media literate, but if they believe they are immune the influence of mass media, they will have little motivation to consistently engage their defenses in subsequent media use.

This “illusion of unique invulnerability” (Perloff, 1987, p. 217), a specific case of self-enhancement or third-person bias (Fiske & Taylor, 1984), refers to a discrepancy between perceptions of one’s own susceptibility (e.g., to media influence) and that of others. Fiske and Taylor noted that such “unrealistic optimism may lead people to ignore legitimate risks in their environment and fail to take measures to offset those risks” (p. 216). In the domain of health behavior, perceived vulnerability to risk has emerged as a key variable related to treatment

compliance and taking preventive measures (e.g., Aiken, Gerend, & Jackson, 2001; Siegel, Raveis, & Gorey, 1998). Aiken and colleagues specified three stages of perceived vulnerability: (1) awareness of a health risk, (2) the belief that others are at risk, and (3) acknowledgement of one's own personal vulnerability. Research suggests that merely pointing out vulnerability is generally insufficient to motivate a shift from the second to the third stage, as the public is already well aware of health risks (Perloff, 1987; Snyder, 1997). Providing personalized information about health risks is a more effective strategy.

Sagarin, Cialdini, Rice, and Serna (2002) examined the third-person effect (i.e., perceptions of invulnerability) in relation to advertising. They developed an intervention designed to challenge these beliefs and thereby motivate both resistance to illegitimate persuasive appeals and receptivity to legitimate appeals. In the context of their study, illegitimate appeals were those relying on false claims of authority. Sagarin and colleagues hypothesized that merely informing individuals of their susceptibility to persuasive appeals would not be sufficient to overcome the motivational barrier of perceived invulnerability; instead individuals would need to be provided with “undeniable evidence” (Sagarin & Cialdini, 2004, p. 270) that they could be manipulated by advertisers. In the *asserted vulnerability* condition, participants were shown example ads demonstrating appropriate and inappropriate use of authority, and asked to consider whether they were initially fooled by an ad utilizing an illegitimate (i.e., fake) authority. In the *demonstrated vulnerability* condition, participants were asked not merely to consider, but to actually rate how convincing they found the target ad. They then were directed to the presence of an illegitimate authority and referred back to their earlier response. Relative to those whose vulnerability was merely asserted, participants in the demonstrated vulnerability condition ultimately found ads using illegitimate authorities less persuasive, and those using legitimate

authorities more persuasive. Furthermore, this effect was mediated by perceptions of manipulative intent. Taken as a whole, research on the third-person effect in perceptions of media influence suggests the role of perceived vulnerability in media literacy warrants further investigation.

## **Summary**

The goal of most media literacy initiatives is promoting critical evaluation of media messages, but dual-process theories propose that constraints on motivation and processing ability reduce the likelihood that an individual will thoroughly process message arguments. Factors impairing processing ability include characteristics of the persuasion context (e.g., distractions), as well as the nature (i.e., content) of the persuasive message. Contemporary emotional marketing strategies are often specifically designed to exploit weaknesses in information-processing infrastructure and subvert high-effort processing. In addition to ability barriers, the message recipient's motivation may be compromised by perceptions of unique invulnerability to media influence (i.e., third-person effects). Media literacy programs focusing on awareness of mass media influence and encouraging thorough processing do little to challenge these beliefs. Given the ubiquity of distractions in the media environment, the sophistication of advertising techniques, and the prevalence of third-person effects, media literacy approaches based solely in conscious, effortful processes are likely to be inadequate for contemporary times.

## **Overview of Research**

The overall goal of the current research was to gain a better understanding of how media literacy mechanisms operate under realistic media-use conditions of low motivation and impaired processing ability. More specifically, this research extended previous work within the

Message Interpretation Process (MIP) Model framework by examining how both logical and emotional decision-making variables are influenced by variations in motivation and ability.

The main research study involved the experimental manipulation of specific barriers to both motivation and processing ability. To address the motivational barrier of third-person effects, a “vulnerability” manipulation was designed (based on the procedures of Sagarin et al., 2002) to challenge individuals’ beliefs about their personal invulnerability to advertising messages. Two additional independent variables addressed potential barriers to processing ability: the type of advertising message (informational or emotional) and the presence or absence of environmental distractions. For the purpose of this research, informational ads were conceptualized as those providing tangible arguments about the advertised product or service that the viewer can consider. Alternatively, emotional ads were conceptualized as those lacking such tangible information, and designed to work primarily by associating the product (or brand) with positive emotions. The stimulus ads for the main study were determined by the results of Pilot Study 1, while the level of distraction was based on the results of Pilot Study 2. Finally, Pilot Study 3 evaluated the convincingness of the print ad selected for the vulnerability manipulation.

### **Beyond Outcomes**

The present research differed from the majority of media literacy research in two key ways. First, because media literacy initiatives are traditionally concerned with educating children and adolescents as a means of preventing risky behaviors, research and evaluation efforts virtually always target these groups (or college students, at the oldest). The current research addressed media literacy among adults. Second, although numerous researchers have emphasized the need for additional evidence of effectiveness with regard to attitudinal and behavioral

outcomes, the present research did not include a media literacy intervention nor evaluate effectiveness.

The rationale for these somewhat unusual decisions was that the current research was designed to examine the individual level *processes* underlying media literacy, rather than test the outcomes of a specific media literacy intervention. Some researchers, notably Austin and colleagues (e.g., Austin et al., 2002; 2006; 2007), have studied the mechanisms through which media literacy operates in an effort to better understand how interventions lead to desired outcomes (and why they sometimes fail). The goal of the present research was to extend the work of Austin and others by studying how barriers to motivation and ability affect these mechanisms, among those who may already have some degree of media literacy knowledge. In other words, the current research was concerned with identifying barriers that might prevent those with latent media literacy knowledge and skills from engaging them in everyday media use.

### **Research Questions**

Pilot Study 1 had no research questions in the traditional sense. The goal of the study was simply to confirm the researcher's *a priori* categorization of stimulus ads as informational or emotional, and to select four ads (two of each type) to be used as stimuli in the main study. Pilot Study 2 addressed the question of what constitutes a sufficient level of distraction to impair thinking about the target ad, while not completely obscuring the ad. The goal of Pilot Study 3 was to confirm that participants would find the print ad selected to be part of the vulnerability manipulation sufficiently convincing.

The main study investigated four research questions in two broad domains: (1) the effects of variations in motivation and ability on a variety of variables conceptualized as intermediate



media literacy outcomes, and (2) mediators and moderators of the relationships among manipulated vulnerability, perceptions of manipulative intent (i.e., distrust), and perceived persuasiveness. Within the first domain, the research was concerned with: (1a) how motivational (e.g., perceived invulnerability) and ability-related barriers (e.g., the nature of advertising messages, distractions in the media use environment) impact intermediate media literacy outcomes, and (1b) how, if at all, these barriers to motivation and processing ability interact in their effects on these outcome variables. With regard to the second domain, the research addressed: (2a) what variables mediate and moderate the relationship between manipulated vulnerability, distrust, and persuasiveness, and (2b) how, if at all, these mediated relationships are affected by variations in motivation and ability (i.e., the conditions under which mediation is evident).

### **Recruitment and Data Collection on Mechanical Turk**

Participants for all three pilot studies and the main study were recruited from Amazon Mechanical Turk (MTurk; [www.mturk.com](http://www.mturk.com)). Initially conceived as a platform for businesses to “crowd-source” labor, MTurk has emerged in recent years as an inexpensive and efficient method of recruiting participants for social research, particularly when a highly specific sample is not required (e.g., Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Iperiotis, 2010). MTurk enables *requesters* to publish small tasks (including surveys) referred to as *human intelligence tasks* (HITs). Members (known as *workers*) browse HITs for which they meet pre-established inclusion criteria, and select which ones to complete.

The growing literature on MTurk (e.g., Iperiotis, 2009; Paolacci et al., 2010) highlights its advantages (e.g., speed of recruitment, low cost, flexibility) and suggests concerns about threats to internal and external validity are largely exaggerated. While self-selected and not

representative of the U.S. population at large, research indicates MTurk samples are comparable to Internet convenience samples recruited through other means, and more representative of the adult U.S. population than traditional college student samples. For a brief review of the literature on MTurk as a recruitment and data collection tool, along with recommendations culled from the present research, see Appendix A.

## CHAPTER THREE: PILOT STUDIES

Before commencing the main study, three preliminary studies were conducted to pilot the stimulus materials for each of the three experimental manipulations (ad type, distraction, and vulnerability). The purpose of Pilot Study 1 was to select four video ads (two informational, two emotional) that were approximately equivalent in persuasiveness and message strength. The goal of Pilot Study 2 was to identify a sufficient level of distraction to impair thinking about the target video ad while not completely obscuring the ad. Finally, Pilot Study 3 was conducted to confirm that the print ad chosen for the vulnerability manipulation would be sufficiently convincing.

### **Pilot Study 1: Video Ads**

In the real world, most ads appeal to emotion to some degree, though they may or may not include tangible information about the product that the consumer can evaluate. For the purpose of this research, informational ads were defined as those that provide tangible product information, regardless of the extent to which they appeal to emotion. Emotional ads, on the other hand, were conceptualized as those combining a high level of emotional appeal and the relative absence of tangible information about the product (i.e., ads that rely primarily or solely on emotional strategies). The goal of this study was to select two ads representing each end of the informational-emotional continuum, with approximate equivalence in persuasiveness and message strength.

### **Method**

**Participants and procedure.** Adult participants (age 18 and older) were recruited through Amazon Mechanical Turk (MTurk) between June 30 and July 3, 2011. To maintain a relatively homogeneous sample, only MTurk members who resided in the United States were

eligible to participate. Because the stimuli were video ads presented in English, respondents were required to be English-fluent. Finally, to reduce the risk of participants rushing through the study and providing poor-quality data, they were required to have an MTurk approval rating of at least 95% (meaning their work has been deemed acceptable on at least 95% of previously completed tasks).

Those who met these inclusion criteria and chose to participate were randomly assigned to one of eight conditions, each representing a different combination of ads (two ads per condition). Immediately following each ad, participants answered a series of questions regarding their perceptions of the ad. After evaluating both ads, they responded to basic demographic questions. The median time to complete the survey, including consent and debriefing procedures, was just over 10 minutes. Participants who reached the end of the survey and clicked “Submit” were compensated forty cents, well within the standard compensation range for a survey of this length on MTurk. A total of 199 participants completed the survey, giving  $N = 398$  individual ad ratings.

**Stimulus materials.** The stimuli were video ads from YouTube.com. To minimize the likelihood of prior exposure, only ads from outside the U.S. were considered, and to limit potential confounds, all ads pertained to the same general product category (food). Ads providing tangible information about the product that the viewer can logically evaluate were initially categorized as informational ads. Those that did not provide such tangible information *and* appealed to the viewer’s emotions (e.g., cultivating positive associations with the brand) were categorized as emotional ads. After generating a large pool of potential ads, four tentative informational ads and four tentative emotional ads were selected for inclusion in the present

study (Table 1; see Appendix B for screen shots and transcripts of each ad). Seven of the eight ads were 30-second Australian ads; one was a 60-second ad from the U.K.<sup>5</sup>

Table 1

*Stimulus Ads for Pilot Study 1*

<b>Ad</b>	<b>Type</b>	<b>Description</b>	<b>Country</b>	<b>Length</b>
1	Info	McCain's Sweet Potato Superfries	Australia	30 sec.
2	Emo	Abbott's Village Bakery (bread)	Australia	30 sec.
3	Info	McDonald's McCafe (coffee)	Australia	30 sec.
4	Emo	McCain's Oven Chips (fries)	U.K.	60 sec.
5	Info	Continental Cook-in-Bag (chicken)	Australia	30 sec.
6	Emo	Tip Top Bread	Australia	30 sec.
7	Info	Uncle Toby's Oats (microwaveable oatmeal)	Australia	30 sec.
8	Emo	Perfect Italiano (cheese)	Australia	30 sec.

The ads were distributed among eight conditions such that each condition included two ads (one of each type), and each ad was evaluated in two conditions. To control for potential order effects, the order of presentation was counterbalanced as shown in Table 2, with each ad appearing once in the first position and once in the second position. Ad numbers correspond to those in Table 1 (odd numbers represent informational ads and even numbers represent emotional ads).

<sup>5</sup> Although ad #4 was from a different country (U.K.) and twice as long as the other ads, it was the same brand as ad #1. Ad 4 was included in this pilot study to examine the possibility that the brand consistency might compensate for the difference in length. Ultimately, the differences between ad 4 and the other ads proved too great, and the ad was not selected.

Table 2

*Conditions and Counterbalancing in Pilot Study 1*

Condition	First Position	Second Position
A	Ad 1	Ad 2
B	Ad 2	Ad 3
C	Ad 3	Ad 4
D	Ad 4	Ad 5
E	Ad 5	Ad 6
F	Ad 6	Ad 7
G	Ad 7	Ad 8
H	Ad 8	Ad 1

All ads were embedded in the survey instrument as Flash® videos. Participants were encouraged to replay each target ad as many times as they wished before moving on to the dependent measures.

**Measures.** In persuasion research, distraction has consistently been shown to interact with message strength such that it hinders persuasion for strong messages but promotes persuasion for weak messages (e.g., Petty et al., 1976). To minimize message strength as a potential confound in the main study, the perceived strength of the stimulus ads was assessed through a thought-listing task. After viewing the stimulus ad, participants were asked to list, in an open-ended format, any thoughts they had while viewing the ad, and then categorize each thought as either negative, neutral, positive, or irrelevant toward the ad. Strength was operationalized as the proportion of positive thoughts out of total relevant thoughts (i.e., sum of positive, negative, and neutral thoughts).

Like message strength, the perceived persuasiveness of the target ad could potentially confound the results of the main study. To evaluate each ad’s persuasiveness, Campbell’s (1995) eight-item perceived persuasiveness scale was used. Although Campbell proposed three factors (perceptions of the *brand*, perceptions of the *ad*, and likelihood of future use), Sagarin and

colleagues (2002) found a single factor solution for this scale (ranging from  $\alpha = .86$  to  $\alpha = .95$  among college students, depending on the ad). The scale consists of four semantic-differential items measuring perceptions of the *brand* along the dimensions *bad-good*, *pleasant-unpleasant*, *low quality-high quality*, and *likable-dislikable*; three semantic-differential items addressing perceptions of the *ad* along the dimensions *pleasant-unpleasant*, *bad-good*, and *awful-nice*; and a Likert item: “If you were to use this type of product in the future, how likely are you to choose this brand?” (*extremely unlikely* to *extremely likely*). All measurement scales ranged from 1-7.

Because no validated scales existed for measuring a given ad’s use of informational techniques or emotional techniques, scales were created to assess these constructs. The use of informational techniques scale consisted of seven Likert items rated from 1 (*strongly disagree*) to 7 (*strongly agree*): “This ad helps me weigh the pros and cons of the product,” “This ad provides information about the product,” “This ad provides specific reasons to think about when deciding whether to buy this product,” “This ad provides useful information about the product that I can think about,” “This ad helps the viewer think about the costs and benefits of this product,” “This ad tries to persuade viewers by providing information,” and “This ad focuses on concrete features of the product.” The use of emotional techniques scale had a total of 20 items. Seven Likert items, rated from 1 (*strongly disagree*) to 7 (*strongly agree*) evaluated recognition of the target ad’s use of emotional techniques: “This ad is designed to play on the viewer’s emotions,” “This ad is intended to bring up strong feelings in the viewer,” “One purpose of this ad is to connect with the viewer’s values,” “A goal of this ad is to bring up positive memories,” “This ad is intended to form an emotional bond with the viewer,” “This ad seeks to make the viewer feel like they belong,” and “This ad tries to persuade viewers by making them emotional.” Three semantic differential items evaluated general activation of emotion: “I found this ad \_\_\_”

(*emotional-unemotional, moving-not moving, and touching-not touching*). Finally, ten Likert items, rated from 1 (*strongly disagree*) to 7 (*strongly agree*), measured the extent to which the target ad evoked *specific* emotions in the viewer: “This ad made me feel \_\_\_” (happy, excited, warm, peaceful, calm, sad, angry, annoyed, anxious, and disgusted).

The emerging literature on the use of MTurk in behavioral research (e.g., Mason & Suri, 2010) highlights the benefits of including “trip questions” (known as *instructional manipulation checks* or IMCs; Oppenheimer, Meyvis, & Davidenko, 2009) to catch “bots” (i.e., automated computer scripts), as well as individuals who are not paying attention. IMCs are items or instructions directing participants to select a specific response option or perform an unusual task (e.g., skipping the next question), rather than responding as they typically would. A single item, “This ad is a commercial, but instead of rating this statement, choose the ‘slightly disagree’ option,” was embedded within each set of informational and emotional items, the order of which was randomized. Because each participant evaluated two ads, there were two opportunities to pass or fail the IMC.

In addition to the main dependent measures and the IMCs, participants were asked to identify the brand or product featured in the ad, and a single dichotomous item was used to assess prior exposure to the target ad: “Have you ever seen this ad before today?” (yes/no). The full survey instrument is included in Appendix C.

## **Results**

Of the 199 participants who completed the survey, a total of 28 (14.1%) failed at least one of the two instructional manipulation checks (12 failed one question and 16 failed both). Data were excluded at the *participant level* (i.e., ratings of both target ads) for those who failed one or



more trip question, who completed the survey in less than six minutes ( $n = 10$ , of which eight also failed at least one trip question), or whose IP address indicated a location outside the U.S. ( $n = 4$ ). In addition, data were excluded at the *ad level* (i.e., ratings of an individual ad) if any of the following was true: captured data indicated the video did not complete (2 responses); the respondent reported the video froze and did not start up again, or did not play at all (5 responses); the respondent reported they had previously seen the target ad (1 response); the respondent incorrectly identified the brand or product (8 responses); or the respondent's comments indicated they do not consume the advertised product (e.g., vegetarian assigned to ad for chicken, 3 responses). All told, these criteria resulted in the exclusion of 72 individual ad ratings (18.1%) from 39 participants (for 33 participants, all data were excluded and for 6 participants, data from only one of the two ads were excluded). The final sample consisted of 166 participants (160 with ratings on both target ads, 6 with ratings on only one ad), giving  $N = 326$  individual ad ratings. The number of responses per ad ranged from 35 to 47, with a mean of 41.

**Participant demographics.** The majority of participants were female (62.0%). Ages ranged from 18 to 81 (the next oldest was 66), with a median age of 33. The middle 50% of participants fell between the ages of 25 and 45. Participants were asked to select all applicable races (as a result, percentages do not add up to 100%). The sample was predominantly white (83.7%), with 7.8% identifying as black or African American, 6.6% Asian, and 3.6% indicating other races (American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or "Other Race"). Participants were additionally asked whether they identify as Hispanic or Latino. Only 4.2% of participants indicated Hispanic or Latino heritage, most of whom were Mexican or Mexican American.

Respondents had a high level of education overall, with 51.8% reporting at least a bachelor's degree, and 19.3% holding a graduate degree. Twenty-five percent of participants indicated they are currently students in a two-year, four-year, or graduate degree program. Including only those who indicated no one else can claim them as a dependent ( $n = 135$ ), 27.9% reported a household income less than \$30,000, 27.9% were between \$30,000 and \$50,000, 29.5% were between \$50,000 and \$100,000, and 14.7% had an income greater than \$100,000.

**Scale construction.** The survey instrument included seven items measuring the target ad's persuasiveness, twenty items addressing the use of emotional techniques, and seven items pertaining to the use of informational techniques. Prior to scale construction, each item was first screened for normality. Although the majority of items exhibited significant negative skew, examination of the distributions revealed the violations were by-and-large not severe. The five emotional items addressing the activation of negative emotions, however, were extremely positively skewed; as such, these items were dropped. Additionally, items with item-total correlations less than .60 on their respective scale were dropped. This criterion resulted in the loss of six items: a single item from the persuasiveness scale ("I personally thought the BRAND featured in the commercial was \_\_\_" [pleasant-unpleasant]) and five items from the emotional scale (those addressing the activation of specific positive emotions).

The resulting scales were highly reliable: persuasiveness (6 items,  $\alpha = .89$ ), use of emotional techniques (10 items,  $\alpha = .94$ ), and use of informational techniques (7 items,  $\alpha = .94$ ). The correlations between each of the three scales, along with scale reliabilities, are shown in Table 3. The uses of both informational techniques and emotional techniques were positively associated with persuasiveness, but the informational and emotional scales were themselves negatively correlated. That said, the relationships between each of the three scales were relatively

low (between 5% and 15% shared variance), indicating the scales represent distinct constructs. In other words, the emotional scale is not simply the reverse of the informational scale. Finally, the reliabilities of the three scales were consistently high across participant sex, age (33 or older versus 32 or younger), type of ad (informational versus emotional), and order of ad appearance (first versus second). The items comprising the final measures are listed in Appendix D.

Table 3

*Scale Correlation Matrix, N = 326<sup>a</sup>*

	<b>Persuasiveness</b>	<b>Emotional</b>	<b>Informational</b>
Persuasiveness (6 items)	.89	.38	.23
Emotional (10 items)		.94	-.30
Informational (7 items)			.94

<sup>a</sup> Values along the diagonal represent scale reliabilities.

**Overview of analyses.** Ratings of the target ad’s persuasiveness, use of informational techniques, and use of emotional techniques were approximately normally distributed. However, the distributions of time spent on the ad, strength scores (proportion of positive thoughts), and the frequencies of different types of thoughts exhibited substantial deviations for normality. As such, nonparametric Mann-Whitney *U* tests were conducted to gauge the effects of ad presentation order, ad type, and sex on these dependent variables. Parametric *t*-tests were conducted for all other dependent variables (persuasiveness, use of emotional techniques, use of informational techniques).

**Order effects.** The only variable with a significant order effect was time spent on the target ad,  $U = 9379.5$ ,  $z = 4.59$ ,  $p < .001$ . Individuals spent approximately 6 seconds longer on the first ad they viewed (median = 45.3) than the second ad (median = 39.3). This difference may

have been due to the time it took to read a warning before moving on to the questions after each ad. Participants may have been more likely to proceed without reading the warning following the second ad. Because the time spent on each ad was not a key dependent variable and the order of ad presentation was counterbalanced so that each ad appeared equally often in each position, this order effect was not explored further.

**Time spent on ad.** The median time spent on the ad screen ranged from 39 to 42 seconds for the 30-second ads, with a median time of 72 seconds for the single 60-second ad. The approximate percentage of participants who played each ad more than once was estimated by doubling the minimum time spent on the ad screen and calculating the number of participants whose time exceeded this threshold. These estimates varied widely among the different ads, from 10% (McCain Oven Chips) to 24% (Perfect Italiano), with no discernible pattern. It appears, however, that the vast majority of participants played the target ads only once. There were no significant effects of sex, age, or ad type (excluding the 60-second ad) on the time spent on the ad screen.

**Ad strength.** Across all ads, the total number of thoughts produced ranged from 1 to 12, with a median of 3. Relevant thoughts (sum of positive, negative, and neutral thoughts) also had a median of 3. The number of positive thoughts ranged from 0 to 7 with a median of 2. Ad strength, calculated as the proportion of positive thoughts out of relevant thoughts, had a mean value of .66 and a median of .75. The mean strength scores for all ads are shown in Figure 2, ordered from highest to lowest. The ads with the highest (McCain Superfries:  $M = .72$ ,  $SD = .33$ ; Continental Cook-in-Bag:  $M = .72$ ,  $SD = .35$ ) and lowest (Uncle Toby's Oats:  $M = .60$ ,  $SD = .41$ ) proportions of positive thoughts were all informational ads.

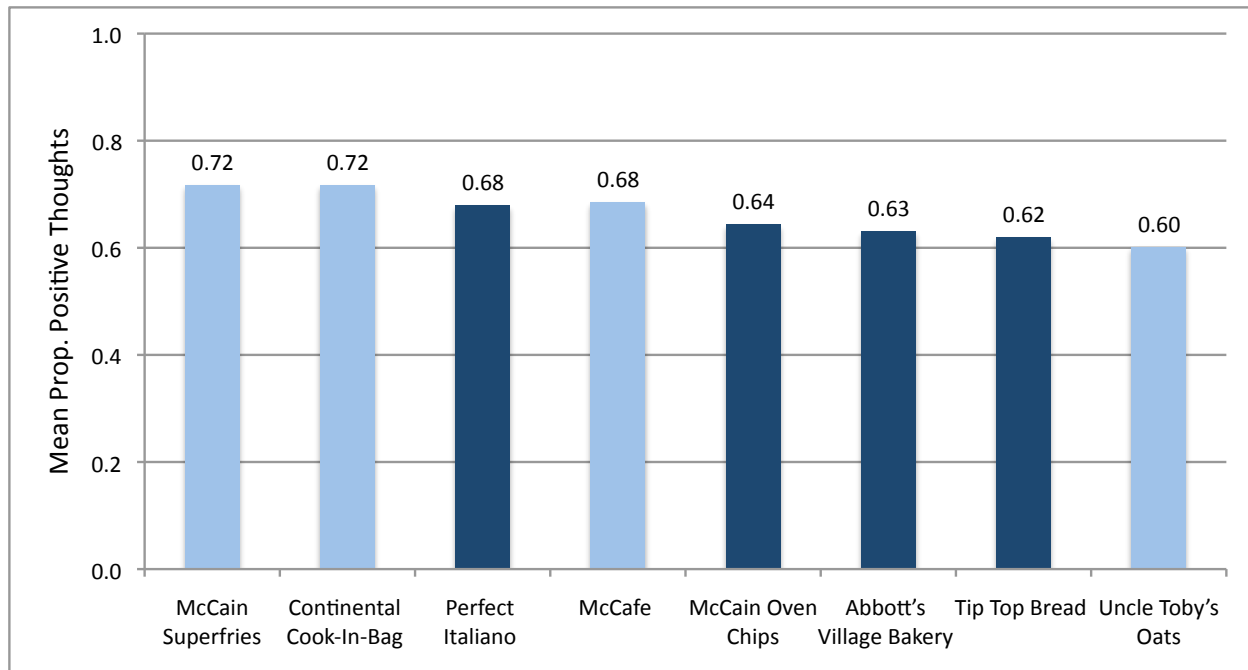


Figure 2. Ratings of strength by ad,  $N = 326$ . Light bars correspond to informational ads and dark bars correspond to emotional ads.

Mann-Whitney  $U$  tests indicated no significant effects of ad type (informational or emotional) on either strength or the number of listed thoughts of each type. There were, however, significant sex differences in the number of positive thoughts ( $U = 10312.5$ ,  $z = 2.47$ ,  $p = .013$ ), relevant thoughts ( $U = 10061.0$ ,  $z = 2.86$ ,  $p = .004$ ), and total thoughts ( $U = 10393.5$ ,  $z = 2.44$ ,  $p = .015$ ), with women producing more of each type of thought than men. Age was positively correlated with ad strength,  $r = .11$ ,  $p = .045$ ; total positive thoughts,  $r = .18$ ,  $p = .001$ ; and total relevant thoughts,  $r = .12$ ,  $p = .033$ . Among those aged 33 or older, the mean ad strength rating was .71 ( $SD = .35$ ); among those 32 or below, it was .61 ( $SD = .39$ ).

**Ad persuasiveness.** Overall, persuasiveness ratings were relatively high ( $M = 5.23$ ,  $SD = 1.28$ ). Figure 3 shows the mean persuasiveness ratings for all ads, ordered from highest to lowest. McCain Superfries ( $M = 5.57$ ,  $SD = 1.06$ ) and Abbott's Village Bakery ( $M = 5.54$ ,  $SD = 1.15$ ) received the highest mean persuasiveness ratings, while Uncle Toby's Oats

( $M = 4.82$ ,  $SD = 1.61$ ) and McCafe ( $M = 5.00$ ,  $SD = 1.19$ ) were rated lowest. Uncle Toby's, however, had the largest standard deviation by far (the next largest was Perfect Italiano,  $SD = 1.33$ ).

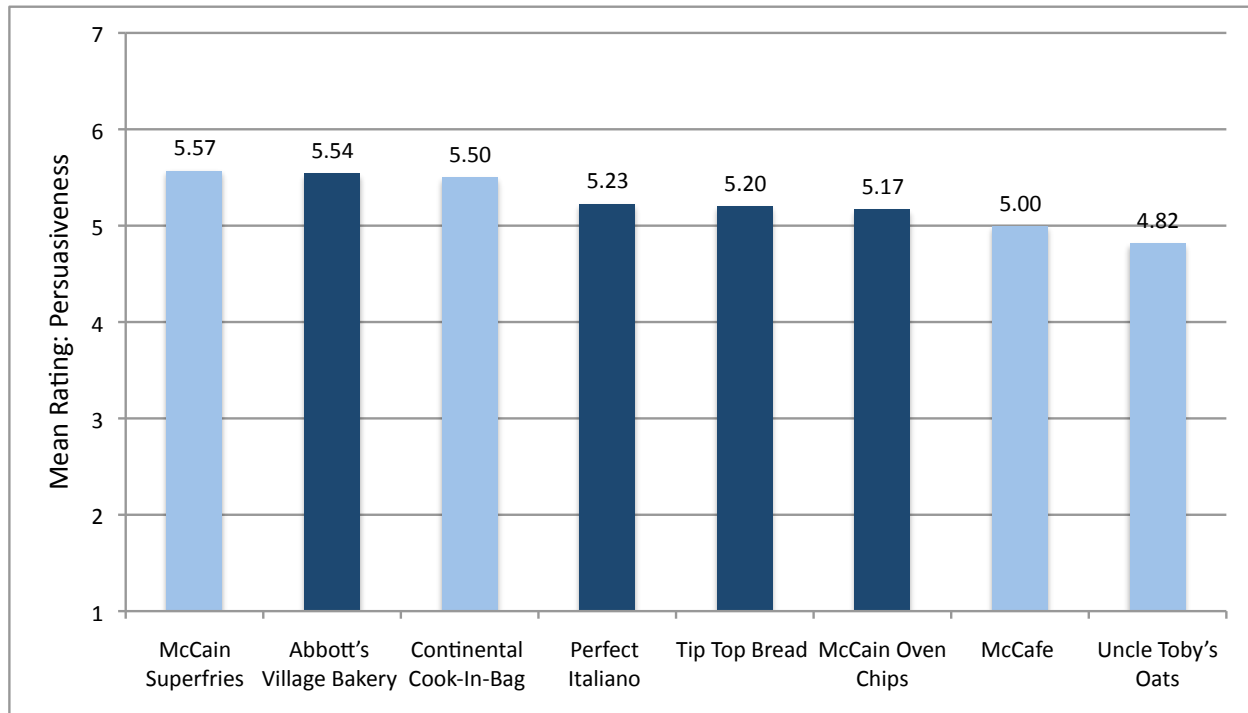


Figure 3. Ratings of persuasiveness by ad,  $N = 326$ . Light bars correspond to informational ads and dark bars correspond to emotional ads.

There were no significant effects of ad type or participant sex on ratings of persuasiveness.

Persuasiveness was, however, positively correlated with participant age,  $r = .12$ ,  $p = .029$ .

**Use of informational techniques.** Across all ads, the mean rating of the use of informational techniques was 3.79 ( $SD = 1.65$ ). Mean ratings of each ad's use of informational techniques are shown in Figure 4, ordered from highest to lowest. As expected, the ads with the four highest ratings were all informational ads.

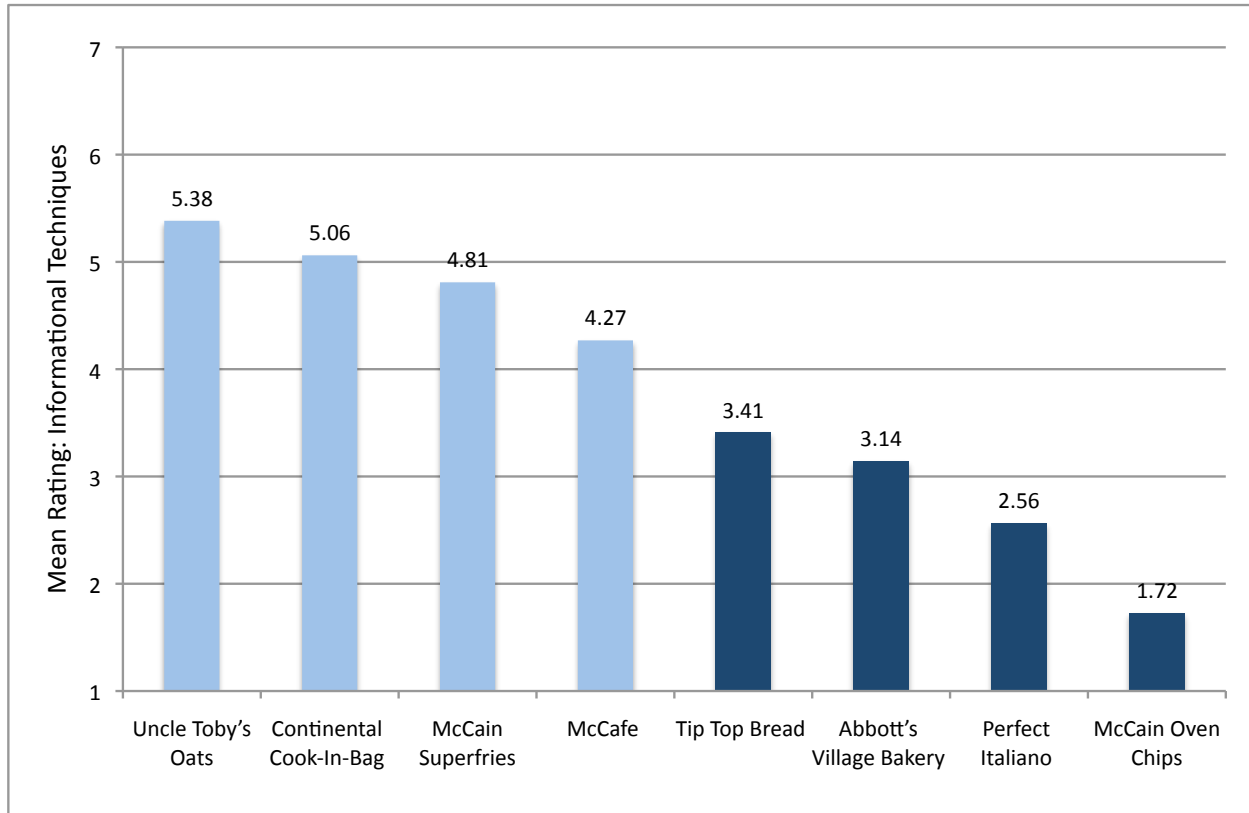


Figure 4. Ratings of the use of informational techniques by ad,  $N = 326$ . Light bars correspond to informational ads and dark bars correspond to emotional ads.

There was a significant main effect of ad type,  $t(311.7) = 16.03, p < .001$ , with informational ads receiving higher mean ratings on the use of informational techniques ( $M = 4.89, SD = 1.10$ ) than emotional ads ( $M = 2.70, SD = 1.36$ ). Neither participant sex nor age was significantly associated with informational ratings.

**Use of emotional techniques.** Overall, the mean rating on use of emotional techniques was 4.50 ( $SD = 1.45$ ). As shown in Figure 5, three of the four highest rated ads were emotional ads, though one of the informational ads (McCain Superfries) surpassed one of the emotional ads (Perfect Italiano).

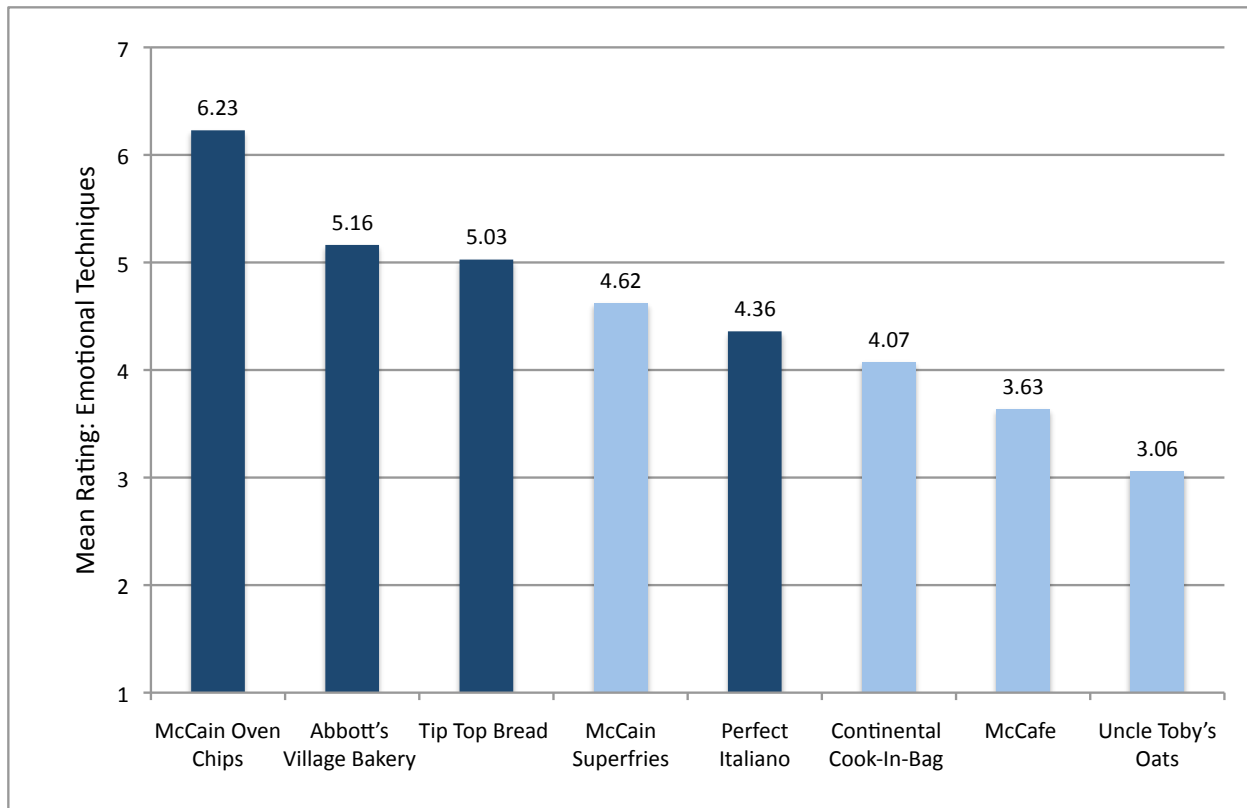


Figure 5. Ratings of the use of emotional techniques by ad,  $N = 326$ . Light bars correspond to informational ads and dark bars correspond to emotional ads.

There was a significant effect of ad type,  $t(324) = 9.87, p < .001$ , with emotional ads receiving higher mean ratings on the use of emotional techniques ( $M = 5.19, SD = 1.20$ ) than informational ads ( $M = 3.80, SD = 1.35$ ). As with informational ratings, emotional ratings had no significant association with participant sex or age.

## Discussion

Overall, the informational and emotional ratings were largely consistent with the *a priori* categorizations of each ad as either informational or emotional. The four informational ads received the highest ratings on the use of informational techniques. Three of the four emotional ads received the highest ratings on the use of emotional techniques, though one of the informational ads (McCain Superfries) exceeded the presumed emotional ad Perfect Italiano on



this measure. Given that Perfect Italiano did not distinguish itself as either an informational or emotional ad, it was dropped from consideration. Although McCain Oven Chips received the highest mean emotional rating and lowest mean informational rating, a number of respondents listed thoughts indicating difficulty determining what the product was. Moreover, the ad was twice as long as any of the others and the only one of the eight ads that was not Australian. As a result, this ad was excluded. Because McCain Superfries was really only informational in relation to McCain Oven Chips, this ad was dropped from consideration as well. Finally, McCafe was excluded, primarily because the informational ratings for this ad were quite low in relation to the other informational ads. Table 4 presents mean ratings of the two remaining informational ads (Continental Cook-in-Bag and Uncle Toby’s Oats) and the two remaining emotional ads (Abbott’s Village Bakery and Tip Top Bread) on each of the four relevant variables.

Table 4

*Mean Ad Ratings on Dependent Variables (SDs in Parentheses), N = 162*

		Mean Ratings				
	Ad Name	N	Informational	Emotional	Persuasiveness	Strength
Info	Continental Cook-in-Bag	35	5.06 (0.92)	4.07 (1.24)	5.50 (1.16)	.72 (.35)
	Uncle Toby’s Oats	47	5.38 (0.75)	3.06 (1.28)	4.82 (1.61)	.60 (.41)
Emo	Abbott’s Village Bakery	35	3.14 (1.20)	5.16 (1.03)	5.54 (1.15)	.63 (.35)
	Tip Top Bread	45	3.41 (1.36)	5.03 (1.10)	5.20 (1.25)	.62 (.39)

Mean ratings for the two selected informational ads and the two selected emotional ads are compared in Figure 6. Because they were measured on a different scale (0 to 1), strength ratings are not shown. However, the pattern in ratings of strength was largely consistent with that of persuasiveness (informational:  $M = .65$ ,  $SD = .39$ ; emotional:  $M = .62$ ,  $SD = .37$ ).

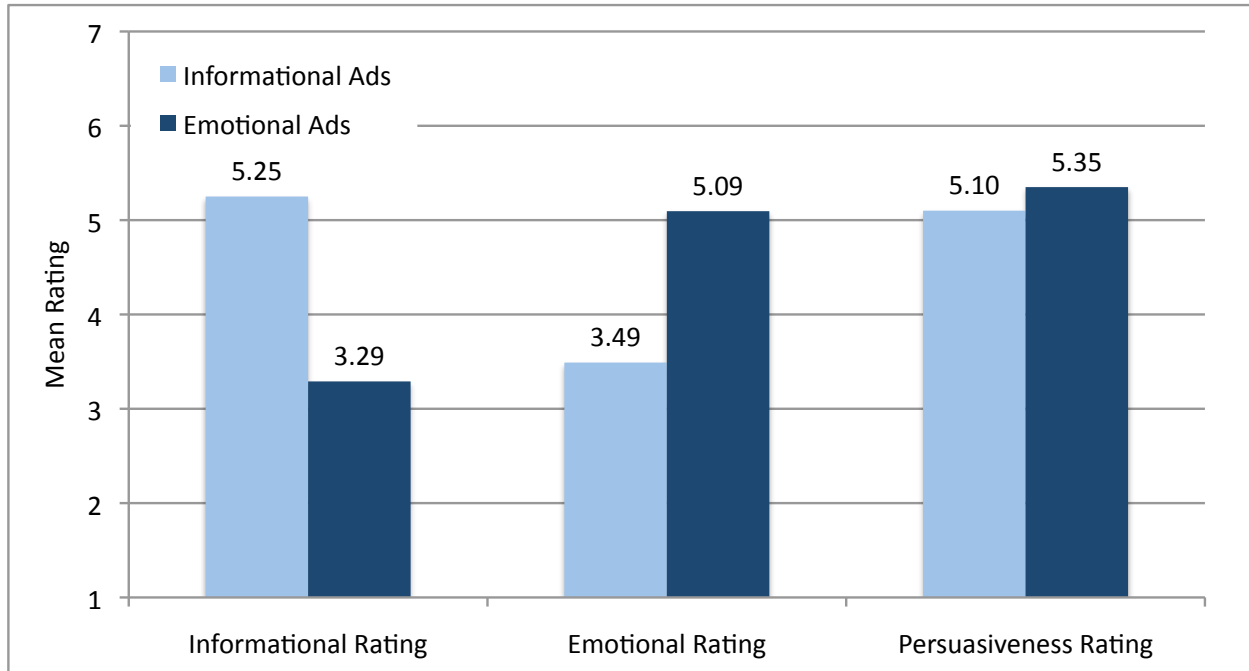


Figure 6. Mean ratings of the use of informational techniques, emotional techniques, and persuasiveness for the two selected informational ads ( $n = 82$ ) versus the two selected emotional ads ( $n = 80$ ).

### Pilot Study 2: Distraction Stimulus

Whereas the purpose of Pilot Study 1 was to select informational and emotional ads for the stimulus ads in the main study, the goal of Pilot Study 2 was to identify an appropriate level of cognitive load for the distraction stimulus in the main study. The level of distraction needed to be “sufficient to interfere with thinking about the message, but weak enough not to obscure the message” (Knowles & Linn, 2004a, p. 129). Because this question was exploratory in nature, no specific hypotheses were put forward.

### Method

**Participants and procedure.** Adult participants were recruited from MTurk between July 18 and 22, 2011. All inclusion criteria remained the same as in Pilot Study 1, with the additional criterion that Study 1 participants who were assigned to the ad used in Pilot Study 2 were ineligible. Those who met the inclusion criteria and chose to participate were randomly

assigned to one of eight experimental conditions in a 4 (level of distraction) x 2 (number of video views) between-subjects factorial design. In the no distraction (control) condition, participants simply watched a video ad. In the other three distraction conditions, participants watched the same ad and simultaneously completed a distracting cognitive task. Participants in all conditions viewed the ad either once or twice.

After viewing the stimulus ad, participants responded to a series of items concerning their level of distraction and recall of the ad, followed by basic demographic questions. The median time to complete the survey, including consent and debriefing procedures, was 7.7 minutes (7.4 minutes for those who viewed the ad once and 7.9 minutes for those who viewed the ad twice). Participants who reached the end of the survey and clicked “Submit” were compensated forty cents. A total of  $N = 210$  participants completed the survey.

**Stimulus materials.** One of the two informational ads identified in Pilot Study 1 (Continental Cook-in-Bag) served as the stimulus ad in all eight conditions. The ad portrays a mother and two children preparing chicken dinner by adding a marinade mix to a bag along with the chicken. Participants were not permitted to pause the ad or otherwise interfere with playback, and depending on the video play condition, viewed the ad either one or two times (consecutively).

The distraction stimulus was based on the procedure used by Petty, Wells, and Brock (1976). During the video ad, participants in the three distraction conditions were exposed to red and/or blue squares that flashed intermittently around the periphery of the video screen. The stimuli appeared for a half second each, and were spaced at varying intervals, preventing participants from anticipating exactly when or where they might appear. The numbers of stimuli of each color presented in each condition, as well as the average interval between stimuli, are

shown in Table 5. For those who viewed the ad once (single-play), the low distraction condition had three red stimuli, the high distraction, single-color condition had six red stimuli, and the high distraction, two-color condition had three red stimuli and three blue stimuli. For those who viewed the ad twice (double-play), the number of distraction stimuli in each condition was doubled (and spread out over the two repetitions of the ad) to maintain a consistent average interval between stimuli. This design enabled examination of the effect of the absolute number of stimuli, while holding the interval constant, as well as the effect of the interval between stimuli, while holding the absolute number of stimuli constant.

Table 5

*Protocol for Presentation of Distraction Stimuli in Pilot Study 2*

<b>Condition</b>		<b>Red Stimuli</b>	<b>Blue Stimuli</b>	<b>Total Stimuli</b>	<b>Average Interval</b>
No Distraction	Single-Play	0	0	0	---
	Double-Play	0	0	0	---
Low Distraction	Single-Play	3	0	3	10 sec.
	Double-Play	6	0	6	10 sec.
High Distraction 1 (one color)	Single-Play	6	0	6	5 sec.
	Double-Play	12	0	12	5 sec.
High Distraction 2 (two colors)	Single-Play	3	3	6	5 sec.
	Double-Play	6	6	12	5 sec.

Participants were directed to keep track of how many stimuli they counted in each color. It was not the stimuli, *per se*, but the cognitive burden associated with keeping an accurate count, that constituted the distraction or cognitive load in this study.

**Measures.** Participants in all conditions (including the no distraction condition) were asked how many stimuli of each color they counted. The mean discrepancy between the actual and reported number of stimuli of each color served as an index of accuracy. To examine participants' recall of the ad (and ensure they were still able to process the video at a minimal

level), they were asked “What was the name of the brand being advertised in the commercial?” Five factual multiple choice questions served as an additional recall measure: “What was the product being advertised in this commercial?,” “How many kids were in this commercial?,” “What arguments were specifically used in the commercial to promote this product?,” “What were the three steps the mother mentioned in this commercial?,” and “When the mother put the chicken in the oven, it was \_\_\_” (still in the bag/no longer in the bag).

To obtain an objective measure of distractedness, participants completed a slight variation on the thought-listing task described in Study 1. Here, the word “favorable” was substituted for “positive” and “unfavorable” for “negative,” and participants were provided with more detailed instructions (e.g., “do not list thoughts related to the flashing squares”). A scale was created to assess participants’ subjective level of distractedness (no pre-existing validated scales measuring this construct were found). All participants completed a nine-item Likert scale, with ratings from 1 (*strongly disagree*) to 7 (*strongly agree*): “I was not able to give the ad my full attention,” “I found myself distracted while watching the ad,” “I was able to concentrate on the ad” (reversed), “My attention was drawn away from the ad,” “I could not focus on the ad,” “I could not follow what was going on in the ad,” “I was able to focus on the ad the entire time” (reversed), “I had trouble following along with the ad,” and “I was able to follow the arguments the ad put forth” (reversed). Two instructional manipulation checks (“I must choose ‘moderately disagree’ for this item” and “I am being instructed to choose ‘moderately agree’”) were embedded in the measures. The full survey instrument is included in Appendix C.

## **Results**

Of the 210 participants who completed the survey, 37 (17.6%) failed at least one of the two IMCs (22 failed one question and 15 failed both). This slightly higher failure rate (relative to

14.1% in Pilot Study 1) may have been attributable to the somewhat confusing wording of these items in the present study. Participants were instructed to indicate their agreement with statements such as “I am being instructed to choose ‘moderately agree’” rather than being explicitly instructed to ignore the statement and “choose the ‘moderately agree’ option,” as in Study 1. Data were excluded for respondents who failed one or more of the IMCs, whose IP address indicated a location outside the U.S. ( $n = 4$ ), whose comments indicated they do not consume the advertised product ( $n = 7$ ), for whom the video did not play ( $n = 1$ ), and those in the distraction conditions who did not accurately articulate the instructions regarding counting stimuli ( $n = 4$ ). In total, these criteria resulted in the loss of 47 participants (22.4%), leaving an effective sample of  $N = 163$ . The number of participants assigned to each of the eight cells ranged from 12 to 29 (as shown in Table 6), with a mean of 20.

Table 6

*Pilot Study 2 Condition Assignments,  $N = 163$*

	<b>Condition</b>	<b>N</b>	<b>%</b>
No Distraction	Single-Play	20	12.3
	Double-Play	29	17.8
Low Distraction	Single-Play	20	12.3
	Double-Play	13	8.0
High Distraction 1 (one color)	Single-Play	26	16.0
	Double-Play	12	7.4
High Distraction 2 (two colors)	Single-Play	24	14.7
	Double-Play	19	11.7

**Participant demographics.** Slightly more than half of the participants were female (53.4%). Ages ranged from 18 to 72, with a median age of 32. The middle 50% of participants fell between the ages of 24 and 45. As in Study 1, participants were asked to select all applicable races; as a result, percentages do not sum to 100%. The sample was predominantly white

(82.8%), with 14.7% identifying as black or African American, 9.8% Asian, and an additional 1.8% indicating other races (American Indian or Alaska Native, or “Other Race”). Only 6.1% of participants self-identified as Hispanic or Latino (Mexican or Mexican American, Puerto Rican, or “Other Hispanic”).

Overall, participants had a high level of education, with 46.6% reporting at least a bachelor’s degree, and 14.1% holding a graduate degree. Twenty-four percent of participants indicated they were students in a two-year, four-year, or graduate degree program. Including only those who indicated no one else can claim them as a dependent ( $n = 134$ ), 29.8% reported a household income less than \$30,000, 26.1% were between \$30,000 and \$50,000, 30.6% were between \$50,000 and \$100,000, and 8.9% had an income greater than \$100,000. Six respondents (4.5%) declined to state their income.

There were no significant demographic differences between the 47 respondents excluded from the analysis and the remaining 163 respondents.

**Scale creation.** The survey instrument included nine items addressing subjective distractedness. Prior to scale construction, each item was first screened for normality and excessive multicollinearity. Several items exhibited significant deviations from normality (mostly negative kurtosis). The distributions of these variables were largely bimodal, with extreme positive skew in the no distraction condition (as would be expected). The overall violations of the assumption of normality were not severe, however. A single item with an item-total correlation less than .60 (“I was able to follow the arguments the ad put forth”) was dropped, giving a highly reliable eight-item scale ( $\alpha = .96$ ). The reliability of the scale was consistently high across participant sex, age, single- and double-play conditions, and the four distraction conditions.

**Overview of analyses.** In addition to subjective distractedness, the dependent variables included measures of recall, accuracy in counting the stimuli, and objective distractedness.

Recall of the ad was represented by two dichotomous measures, *brand recall* and *factual recall*. First, open-ended responses identifying the brand were coded as correct if the respondent mentioned “Continental,” “cook-in-bag,” “cooking bag” (or misspellings thereof). Answers coded as incorrect included “chicken,” “Tyson,” “bag,” and variations of “I don’t know.” The factual recall measure was determined by participants’ responses to the five multiple choice items. Because each item had relatively few incorrect responses (no more than 25%), those who answered all five items correctly were coded as passing and those who answered fewer than five items correctly were coded as failing. Additionally, a continuous measure of recall was generated by summing the number of items answered correctly (brand identification plus multiple choice items), producing a scale ranging from zero to six. Accuracy was calculated separately for red and blue stimuli as the absolute value of the discrepancy between the actual and reported number of stimuli in that particular condition. Additionally, for red stimuli only, two dichotomous measures of accuracy were generated: (1) no deviation (i.e., exact count) versus any deviation from the true number, and (2) deviation within one of the true number versus an absolute deviation of two or more. Objective distractedness was operationalized as the sum of favorable and unfavorable thoughts (neutral and irrelevant thoughts were not counted), with fewer thoughts indicating a higher level of distractedness. The distribution of the combined recall variable was highly negatively skewed, and the subjective and objective distractedness measures were positively skewed. The original untransformed variables were used in all cases, but nonparametric tests were applied. The final measures are listed in Appendix D.



**Participation in Pilot Study 1.** A total of 27 participants (16.6%) had previously completed Pilot Study 1. The only dependent variable significantly related to prior participation was identification of the brand,  $\chi^2(1) = 4.48, p = .034$ . Pilot Study 1 participants were more likely to correctly identify the brand (77.8%) than those who did not participate in the previous pilot study (55.9%). This difference may have been attributable to practice with the task of identifying a brand featured in a video ad. Given the relatively small percentage of Study 1 participants in this sample, these individuals were simply dropped from the analyses of brand recall, rather than analyzing the data separately.

**Recall of ad.** Across all conditions, brand recall was 59.5% and factual recall was 60.1%. Chi-square analyses indicated no significant effect of distraction condition on brand recall. Brand recall was, however, significantly affected by the number of video plays,  $\chi^2(1) = 6.75, p = .009$ . Participants who viewed the ad twice were more likely to correctly identify the brand (68.3%) than those who viewed the ad only once (46.1%). There were no significant sex or age differences in brand recall. For factual recall, the effects of both distraction,  $\chi^2(3) = 16.04, p = .001$ , and video play condition,  $\chi^2(1) = 5.23, p = .022$ , were significant. Respondents in the no distraction condition were more likely to have answered all five multiple choice questions correctly (81.6%) than those in the low, high distraction single-color, and high distraction two-color conditions (60.6%, 42.1%, and 51.2% respectively). Similarly, those in the double-play condition were more likely to have answered the multiple choice items correctly (69.9%) than those in the single-play condition (52.2%). As with brand recall, there were no significant sex or age differences.

As shown in Table 7, the nonparametric Kruskal-Wallis test for the effect of distraction on combined recall was significant,  $\chi^2(3) = 19.15, p < .001$ . *Post hoc* Mann-Whitney *U* tests

revealed participants in the two high distraction (one color and two color) conditions had significantly diminished recall relative to the no distraction condition ( $p < .001$  and  $p = .002$ , respectively). There was no statistically significant difference in recall between the low distraction and no distraction conditions. There was also a significant effect of video play on combined recall,  $U = 2491.0$ ,  $z = 2.84$ ,  $p = .004$ , with better recall in double-play condition relative to the single-play condition.

**Accuracy.** The absolute deviation from the true number of stimuli ranged from 0 to 11 for red stimuli, and from 0 to 6 for blue stimuli. Both had a median of 0 (i.e., no deviation). Nearly one-third (31.9%) of respondents counted the red stimuli incorrectly, but only 16.6% deviated by more than one from the true count.

As shown in Table 7, the nonparametric Kruskal-Wallis test indicated distraction condition had a significant effect on absolute accuracy (discrepancy between the reported number and the true number) in counting red stimuli,  $\chi^2(3) = 32.55$ ,  $p < .001$ . *Post hoc* Mann-Whitney  $U$  tests revealed each of the three distraction conditions deviated significantly more ( $p < .001$ ) from the true count than the no distraction condition, which had no deviation. Distraction condition was significantly associated with the likelihood of any deviation on red stimuli,  $\chi^2(3) = 34.03$ ,  $p < .001$ . The no distraction condition had no deviation, while the other conditions had increasing proportions of respondents with any deviation (low: 39.4%, high one-color: 44.7%, high two-color: 51.2%). Distraction condition also predicted the likelihood of a deviation of two or more from the true number,  $\chi^2(3) = 16.15$ ,  $p = .001$ . Video play had no significant effect on the absolute deviation in red stimuli, and was not associated with the likelihood of any deviation, or a deviation of two or more.

As with red stimuli, distraction had a significant effect on absolute accuracy in counting blue stimuli,  $\chi^2(3) = 44.37, p < .001$ . Only the high distraction, two color condition (the sole condition with any blue stimuli) differed significantly from the no distraction condition,  $U = 676.5, z = 4.18, p < .001$ . Video play also had a significant effect on blue discrepancies,  $U = 2895.5, z = 2.33, p = .020$ ; the mean absolute deviation from the true number of blue stimuli was higher in the double-play condition than the single-play condition.

**Objective distractedness.** Across all conditions, the total number of favorable and unfavorable thoughts ranged from 0 to 12 with a median of 3. Thoughts were predominantly positive. As shown in Table 7, the Kruskal-Wallis test found no significant effect of distraction on the number of relevant thoughts. A Mann-Whitney  $U$  test indicated a significant effect of video repetition on the number of relevant thoughts,  $U = 2502.0, z = 2.67, p = .008$ , with fewer thoughts listed in the single-play condition than the double-play condition. As in Pilot Study 1, there was a significant sex difference in the number of relevant thoughts,  $U = 2551.0, z = 2.31, p = .021$ , with female respondents ( $M = 3.89, SD = 2.11$ ) generating more thoughts than males ( $M = 3.11, SD = 1.65$ ). There was no significant association between age and number of thoughts.

**Subjective distractedness.** Overall, the mean rating of subjective distractedness was 3.18 ( $SD = 1.83$ ). As shown in Table 7, the nonparametric tests indicated a statistically significant effect of distraction,  $\chi^2(3) = 79.26, p < .001$ , and each of the three distracted groups differed significantly from the control group at the  $p < .001$  level. There was also a significant effect of video play condition on subjective distractedness,  $U = 2555.0, z = 2.45, p = .014$ . Participants who viewed the ad twice rated themselves less distracted than those who viewed it only once. Subjective distractedness was not significantly associated with participant sex or age.

Table 7

Mean Ratings (SDs in Parentheses) and Nonparametric Tests<sup>a</sup> of Distraction and Video Play,

$N = 163$

	Mean Ratings				
	Combined Recall	Red Discrepancy	Blue Discrepancy	Total Thoughts	Subjective Distractedness
<b>Distraction Condition</b>	$p < .001$	$p < .001$	$p < .001$	n.s.	$p < .001$
None	5.45 (0.91)	0.00 (0.00)	0.06 (0.32)	3.73 (1.75)	1.35 (0.60)
Low	5.12 (0.82)	0.73*** (1.07)	0.00 (0.00)	3.67 (1.90)	3.76*** (1.55)
High 1	4.66*** (0.99)	1.05*** (2.09)	0.00 (0.00)	2.92 (1.73)	3.95*** (1.62)
High 2	4.84** (1.07)	1.00** (1.29)	0.84*** (1.36)	3.72 (2.26)	4.13*** (1.65)
<b>Video Play Condition</b>	$p = .004$	n.s.	$p = .020$	$p = .008$	$p = .014$
Single-Play	4.88 (0.95)	0.56 (0.86)	0.08 (0.31)	3.18 (1.70)	3.50 (1.92)
Double-Play	5.23 (1.03)	0.78 (1.80)	0.44 (1.12)	3.96 (2.12)	2.77 (1.63)

<sup>a</sup> For distraction effects, Kruskal-Wallis tests were conducted, with *post hoc* Mann-Whitney *U* tests comparing each condition to the no distraction condition. For the effects of video play, Mann-Whitney *U* tests were conducted.

\*\*  $p < .005$ , \*\*\*  $p < .001$  for *post hoc* tests of distraction effects (relative to no distraction condition)

**Accurate versus inaccurate respondents.** It was hypothesized *post hoc* that counting the stimuli *accurately* might have presented a more substantial cognitive burden (i.e., greater distraction) than counting *inaccurately*. To examine the relationships between accuracy and the other dependent variables, participants with any deviation on red stimuli were compared to those who counted accurately, and significant differences were found for recall,  $U = 2148.0$ ,  $z = 2.78$ ,  $p = .005$ , and subjective distractedness,  $U = 2123.0$ ,  $z = 2.73$ ,  $p = .006$ . Contrary to the expected relationship, those whose count deviated by at least one from the true number had significantly poorer recall ( $M = 4.79$ ,  $SD = .89$ ) than those who counted accurately ( $M = 5.15$ ,  $SD = 1.03$ ), and reported greater subjective distractedness ( $M = 3.72$ ,  $SD = 1.72$ ) than those who counted

accurately ( $M = 2.92$ ,  $SD = 1.83$ ). Respondents with a deviation of two or more differed significantly from those within one of the true count in the number of relevant thoughts listed,  $U = 1241.5$ ,  $z = 2.71$ ,  $p = .007$ . The less accurate respondents generated fewer thoughts ( $M = 2.70$ ,  $SD = 1.68$ ) than their more accurate counterparts ( $M = 3.69$ ,  $SD = 1.95$ ). To further examine the pattern of results, all analyses were run separately for the subgroups of participants with 100% accuracy on red square counts ( $n = 111$ ) and those whose counts were within one of the true number ( $n = 136$ ). Imposing these more stringent criteria, however, did not alter the results in any substantive way.

**Confounding variables.** It is not possible, within the current design, to simultaneously separate the effect of the number of distraction stimuli from both the average interval between stimuli and the total time (see Table 5). Within each level of video play (single or double), examining the influence of distraction condition provides a test of the effect of the absolute number of stimuli while controlling for overall time, but this test is confounded by variation in the interval between the stimuli. Similarly, examining the effect of video play within each level of distraction provides a test of the number of stimuli while controlling for the average interval, but this test is confounded by variation in overall time. To further examine the effects of the absolute number of stimuli, overall time, and the average interval between stimuli, a series of follow-up analyses was conducted.

As shown in Table 8, the low distraction, single-play condition was compared, separately, to two other conditions—the high distraction one color, single-play condition (shown in the top row) and the low distraction, double-play condition (shown in the bottom row). The comparison between the low distraction and high distraction single-play conditions allows a test of the effect of the number of stimuli (three versus six), while holding the total time constant (30 seconds),

though in this case, the number of stimuli is confounded with the average interval between stimuli (10 versus 5 seconds). Alternatively, the comparison between the low distraction single- and double-play conditions allows a test of the number of stimuli, but this time holding the average interval constant (10 seconds). In this case, however, the number of stimuli is confounded with the total time.

Table 8

*Tests of Number of Distraction Stimuli Controlling for Total Time and Average Interval Between Stimuli*

Controlling For	Number of Stimuli (Red)	
	3	6
Total Time (30 sec.)	Low Distraction, Single-Play (Interval: 10 sec.) <i>n</i> = 20	High Distraction (1 color), Single-Play (Interval: 5 sec.) <i>n</i> = 26
Average Interval (10 sec.)	Low Distraction, Single-Play (Time: 30 sec.) <i>n</i> = 20	Low Distraction, Double-Play (Time: 60 sec.) <i>n</i> = 13

Holding the total time constant at 30 seconds, the effect of the number of distraction stimuli was significant only for the number of thoughts,  $U = 169.0$ ,  $z = 2.08$ ,  $p = .038$ ; participants in the condition with six distraction stimuli listed fewer thoughts ( $M = 2.54$ ,  $SD = 1.21$ ) than those in the condition with three stimuli ( $M = 3.65$ ,  $SD = 1.93$ ). The effect of the number of stimuli on recall was marginally significant,  $U = 180.5$ ,  $z = 1.89$ ,  $p = .058$ , with poorer recall in the six stimuli condition ( $M = 4.65$ ,  $SD = .85$ ) than the three stimuli condition ( $M = 5.10$ ,  $SD = .79$ ). Holding the average interval between stimuli constant at 10 seconds, none of the effects of the number of stimuli was statistically significant.

## Discussion

Across all conditions, the majority of respondents were able to identify the brand and correctly answer all five multiple choice questions regarding the content of the ad. The distraction manipulation significantly impaired factual recall, but not brand recall. The effect of distraction on the combined recall measure suggests recall was diminished in the two high distraction conditions, relative to the control condition. Distraction also reduced accuracy, with increasing deviation from the true number of red stimuli as the level of distraction increased. The results for accuracy in counting blue stimuli were as expected; with the exception of the high distraction, two color condition (the only condition with blue stimuli) all distraction conditions had near perfect accuracy on blue counts. The thought listing measure largely failed to discriminate between the distraction conditions. Only when the total time was controlled did the effect of the number of distraction stimuli achieve statistical significance. Thus, the thought listing measure appears have limited utility as a measure of distractedness. That said, self-reported subjective distractedness was strongly influenced by the distraction manipulation; participants in each of the three distraction conditions reported a higher level of distractedness than those in the control condition.

*Post hoc* comparisons between specific conditions suggest the number of distraction stimuli is highly confounded with the average interval between stimuli. In the present study, the effect of distraction refers to both the absolute number of stimuli and the interval between stimuli. The effect of the total time over which the stimuli are presented (i.e., number of video plays) appears to be distinct.

The number of video views was related to virtually all dependent measures. Participants who watched the video twice were more likely to pass each of the recall measures and had higher

combined recall scores. Those assigned to the double-play condition also generated more relevant thoughts and reported a lower level of subjective distractedness than those in the single-play condition. Accuracy in counting blue stimuli was reduced in the double-play condition, but video views had no statistically significant effect on red accuracy. That said, the variances for both red and blue stimulus counts were significantly higher in the double-play conditions ( $p = .004$  and  $p < .001$  respectively), suggesting that playing the ad twice introduced more variability.

Overall, the results of this study suggest the level of distraction strongly influences recall, accuracy, and perceived distractedness, with the most consistent differences between the two high distraction conditions and the no distraction condition. Inaccurate counters were more likely to perform poorly in general, with reduced recall of the ad, fewer relevant thoughts, and a greater reported level of distractedness. That said, excluding these inaccurate counters did not alter the results in any substantive way. Viewing the ad twice appears to improve performance in many ways—enhancing recall, reducing perceived distractedness, and resulting in more relevant thoughts. However, those who viewed the ad twice had reduced accuracy in blue square counts and much greater variation in accuracy overall, suggesting the double-play condition may have introduced some uncertainty with regard to the task of counting stimuli. Based on these findings, the high distraction, single-color condition was chosen for the distraction condition in the main study. To maximize cognitive load and simplify the manipulation (i.e., avoid introducing uncertainty), a decision was made to allow participants to play the ad only once.

### **Pilot Study 3: Print Ad**

A third pilot study was conducted to confirm that the print ad chosen for the vulnerability manipulation in the main study would be sufficiently convincing. Because the vulnerability



manipulation involved demonstrating to participants their vulnerability to advertising, its effectiveness hinged on participants finding the print ad at least *somewhat convincing* (a value of 3 on a 7-point scale). The manipulation was simply not theorized to work for those who did not find the ad convincing.

## **Method**

**Participants and procedure.** Adult participants were recruited from MTurk between August 16 and 17, 2011. All inclusion criteria remained the same as in the previous pilot studies. To avoid depleting the pool of potential participants for the main study, an additional criterion was imposed that individuals must have participated in one or more of the previous pilot studies. After approximately twenty-one hours, with only 18 responses submitted, this criterion was lifted to speed the response rate.

Participants were asked to examine a print ad for thirty seconds and form an impression of it, and then indicate how convincing they found the ad. No demographic information was collected. The median time to complete this brief survey was 46 seconds. Participants who clicked “Submit” at the end of the survey were compensated ten cents. A total of  $N = 43$  participants completed the survey, of which 18 had been participants in one or more of the previous pilot studies, and 25 were new participants.

**Stimulus materials.** The print stimulus ad was a full-page, color advertisement for Wendy’s® “Berry Almond Chicken Salad” from *Cooking Light* magazine (Appendix B). The image was cropped slightly to fit within the MTurk window without requiring participants to scroll. Additionally, the brand (Wendy’s) was obscured to minimize the impact of any preexisting biases regarding the restaurant chain. The ad featured a close-up image of the salad, accompanied by the following text:

**NEW**

**BERRY ALMOND CHICKEN SALAD**

*Now at [redacted], taste the difference fresh can make - with hand-cut strawberries and plump blueberries, picked at the peak of the season. Served with a tender grilled chicken breast, eleven kinds of greens, Asiago cheese and roasted almonds. Drizzled with all-natural, fat-free raspberry vinaigrette. Try it today, because our fresh-picked berries only last as long as summer!*

**BERRY BERRY GOOD**

*For a limited time only.*

**Measures.** Participants were asked to indicate, on a scale from 1 (*not at all convincing*) to 7 (*extremely convincing*), “How convincing did you find this ad?” The brief survey instrument is included in Appendix C.

**Results**

The print ad received a mean rating of 4.88 ( $SD = 1.66$ ), with a median of 5. A total of 9.3% of respondents rated the ad less than 3 (*somewhat convincing*), the threshold value for the vulnerability manipulation in the main study. There was no significant difference in ratings between those who had participated in one of the previous pilot studies and those who had not. The distribution of responses is shown in Table 9.

Table 9

*Ratings of Print Ad Convincingness, N = 43*

	<b>Rating</b>	<b>N</b>	<b>%</b>
1	<i>Not at all convincing</i>	4	9.3
2	<i>Slightly convincing</i>	0	0
3	<i>Somewhat convincing</i>	4	9.3
4	<i>Fairly convincing</i>	4	9.3
5	<i>Convincing</i>	13	30.2
6	<i>Very convincing</i>	13	30.2
7	<i>Extremely convincing</i>	5	11.6
1-2	Less than <i>somewhat convincing</i>	4	9.3
3-7	<i>Somewhat convincing</i> or more	39	90.7
	TOTAL	43	100.0

## Discussion

Given that more than 90% of ratings exceeded the threshold, the print ad was deemed sufficiently convincing to be used as part of the vulnerability manipulation in the main study. That said, the manipulation was designed to target only those individuals who deem the print ad at least *somewhat convincing*. Based on the results of this pilot study, it was expected that data from approximately 10% of respondents (i.e., those who rated the print ad less than 3) would ultimately be excluded from the main study.

## CHAPTER FOUR: MAIN STUDY HYPOTHESES AND METHOD

The purpose of the main study was to examine the impact of specific barriers to both motivation (illusions of invulnerability) and processing ability (emotional advertising, distraction) on a variety of intermediate media literacy outcomes. Three key independent variables were experimentally manipulated: (1) perceived vulnerability to advertising (control, demonstrated vulnerability), (2) type of ad (informational, emotional), and (3) viewing conditions (distraction, no distraction). Additionally, two exemplar ads (i.e., replicates) were nested within the ad type variable. A fifth independent variable involved counterbalancing the order of presentation of certain key measures (explained in greater detail later in this chapter).

Relative to the control condition, the demonstrated vulnerability condition was designed to overcome perceptions of personal invulnerability to advertising, thereby increasing motivation to engage in thorough processing of subsequent advertising messages. Whereas the vulnerability manipulation was designed to address a specific motivational barrier to high-effort processing, the manipulations of ad type and viewing conditions represented more general constraints on processing ability. Because emotional ads (as defined here) do not have propositional arguments that the consumer can evaluate, processing ability was expected to be hindered in the emotional ad condition, relative to informational ad condition. Similarly, the presence of distractions was expected to impair the ability to thoroughly process the target ad, regardless of ad type.

### **Hypotheses**

#### **Effects of Motivation and Ability**

Research question 1a asked how specific barriers to motivation (perceived invulnerability) and ability (type of ad, distractions) affect intermediate media literacy outcomes.

These outcomes include cognitions about persuasibility (beliefs about general persuasibility, perceptions of unique invulnerability), responses to the target ad (perceptions of manipulative intent, favorable and unfavorable thoughts, perceptions of persuasiveness), and decision-making variables identified by the MIP model (trust, perceived realism, perceived similarity, desirability, identification).

**Hypothesis 1.** The vulnerability manipulation was designed to reduce the motivational barrier posed by illusions of invulnerability by challenging these beliefs. Consistent with this expectation, a main effect of vulnerability was hypothesized, such that relative to the control condition, demonstration of vulnerability enhances perceptions of persuasibility, perceptions of manipulative intent, and negative thoughts, and reduces perceptions of unique invulnerability, perceived persuasiveness, trust, and identification with portrayals. No effects of the vulnerability manipulation were hypothesized for perceived realism or perceived similarity.

**Hypothesis 2.** Because emotional ads, by definition, do not include propositional information that one can logically evaluate, emotional ads were expected to pose a barrier to processing ability relative to informational ads. Consistent with this expectation, a main effect of ad type was hypothesized, such that relative to informational ads, emotional ads enhance perceived persuasiveness, trust, perceived realism, perceived similarity, desirability, and identification, and elicit more positive thoughts. No effects of ad type were hypothesized for perceptions of persuasibility, invulnerability, or manipulative intent.

**Hypothesis 3.** Like emotional forms of advertising, distraction was expected to pose a barrier to processing ability. A main effect of distraction was hypothesized, such that relative to the control condition, distraction enhances perceived persuasiveness, trust, perceived realism, perceived similarity, desirability, and identification, and reduces negative thoughts (i.e.,

counterarguing). No effects of distraction were hypothesized for perceptions of persuasibility, invulnerability, or manipulative intent.

Research question 1b asked how barriers to motivation (perceptions of invulnerability) and processing ability (emotional ads, distractions) interact in their effects on media literacy outcomes.

**Hypothesis 4.** A two-way interaction between ad type and distraction was hypothesized, such that distraction has a greater effect on processing of the informational ad, relative to the emotional ad. This hypothesis was derived from previous research suggesting affective processes are less susceptible to processing constraints such as cognitive load (e.g., Rose, Roberts, & Rose, 2004; Zajonc, 1984).

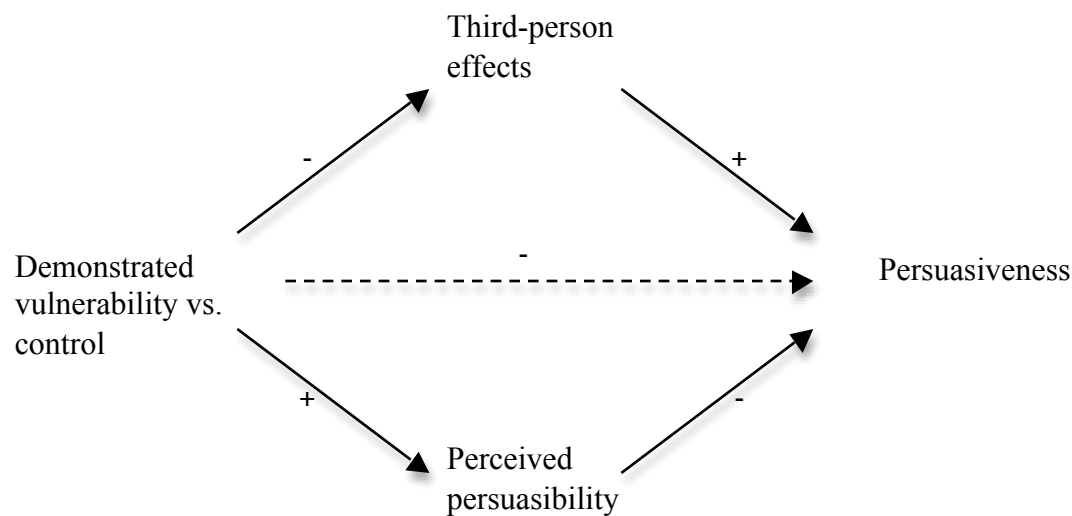
**Hypotheses 5 and 6.** Additional two-way interactions were hypothesized between manipulated vulnerability and type of ad (Hypothesis 5), and between vulnerability and distraction (Hypothesis 6), such that the effect of vulnerability is most pronounced when ability to process the message is already high (informational ad, no distraction). These hypotheses were based on dual-process research suggesting ability is a prerequisite condition for high-effort processing.

### **Mediators and Moderators of Persuasiveness**

Research question 2a addressed mediators and moderators of persuasiveness. The following hypotheses were derived from Sagarin and colleagues' (2002) finding of negative associations between manipulated vulnerability (demonstrated versus asserted) and perceived persuasiveness, as well as between perceptions of undue manipulative intent and persuasiveness.

**Hypotheses 7 and 8.** The difference in perceived persuasiveness between the control and demonstrated vulnerability conditions (described under research question 1a) was hypothesized

to be at least partially mediated by perceptions of persuasibility (Hypothesis 7) and third-person effects (Hypothesis 8). Specifically, third-person effects were hypothesized to be reduced, and perceived persuasibility heightened, in the demonstrated vulnerability condition (relative to the control condition). Third-person effects were hypothesized to be positively associated with persuasiveness such that those who acknowledge their personal vulnerability find the ad less persuasive. Similarly, a negative relationship between perceived persuasibility and persuasiveness was hypothesized. These relationships are shown in Figure 7.

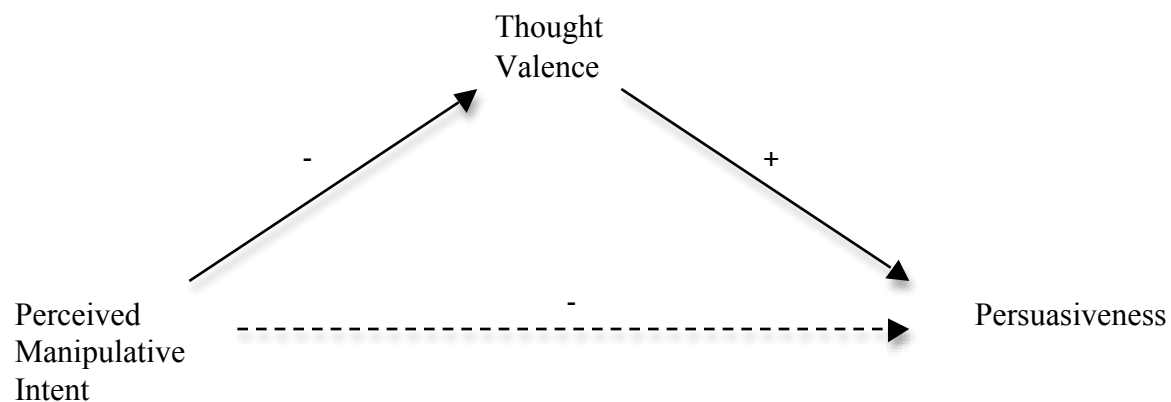


*Figure 7.* The effect of manipulated vulnerability on persuasiveness was hypothesized to be at least partially mediated by a reduction in perceived invulnerability (i.e., third-person effects) and increased perceptions of persuasibility.

**Hypotheses 9 and 10.** Driven by the expectation that perceptions of manipulative intent would be most influential for those who believe they are vulnerable to such manipulation, perceptions of persuasibility and perceived invulnerability (i.e., third-person effects) were hypothesized to moderate the (negative) relationship between perceptions of undue manipulative

intent and persuasiveness. Specifically, this relationship was hypothesized to be stronger when perceived persuasibility is high (Hypothesis 9) or third-person effects are low (Hypothesis 10).

**Hypothesis 11.** Based on Sagarin and colleagues' finding that cognitive responses partially mediate the negative relationship between perceptions of manipulative intent and persuasiveness, it was hypothesized that thought valence would partially mediate this relationship in the present study (Figure 8).



*Figure 8.* The negative relationship between perceptions of manipulative intent and persuasiveness was hypothesized to be partially mediated by a reduction in thought valence (i.e., less positivity of thoughts).

Research question 2b asked under what conditions the mediated relationship described under Hypothesis 11 would be evident (i.e., how is this mediated relationship affected by variations in ability?).

**Hypothesis 12.** The degree of mediation by thought valence was hypothesized to vary as a function of ability, such that the mediated relationship described under Hypothesis 11 is stronger in the informational ad and no distraction conditions, relative to the emotional and distracted conditions.



## Method

### Participants and Procedure

Adult participants were recruited from MTurk between August 27 and October 12, 2011. The survey was refreshed (i.e., taken down and reposted as a new HIT) nineteen times over the course of forty-six days. Each HIT was left open for between 48 and 72 hours. All inclusion criteria remained the same as in the previous studies, with the additional criterion that individuals who participated in any of the three pilot studies were not eligible. Those who met these criteria and chose to participate were randomly assigned to one of thirty-two experimental conditions in a 2 x 2 x 2 x 2(2) between-subjects nested design. Three of the crossed independent variables represented different levels of motivation and processing ability: (1) manipulated vulnerability (demonstrated vulnerability or control), type of ad (informational or emotional), and viewing conditions (distraction or no distraction). The fourth crossed variable involved counterbalancing in the measures relating to perceptions of vulnerability (described in greater detail in the measures section). Finally, four replicates were nested within the ad type variable (two informational ads, two emotional ads).

Participants received the vulnerability manipulation, followed by exposure to the target (video) ad, which was either informational or emotional in nature, with two possible target ads for each type. The print ad used in the vulnerability manipulation was selected based on the results of Pilot Study 3, whereas the video ads were determined by the results of Pilot Study 1. Participants were not permitted to go back to view the ad a second time, or pause the ad during playback. Simultaneous with exposure to the ad, participants in the distraction condition were directed to complete a cognitive task as described in Pilot Study 2. The level of distraction in the distracted condition was determined based on the results of Pilot Study 2.

After viewing the target ad, participants responded to a battery of items constituting the dependent variables of the present study, followed by basic demographic questions. The median time to complete the survey, including consent and debriefing procedures, was 13.1 minutes (90% of respondents took between 7.8 and 23.7 minutes). Those who reached the end of the survey and clicked “Submit” were compensated 51 cents. A total of  $N = 1298$  participants completed the survey. The number of responses per day ranged from a high of 81 on the first day to a low of 5 on day thirty-eight, with a median of 25.

### **Stimulus Materials**

**Vulnerability manipulation.** The manipulation of perceived vulnerability was based on Sagarin and colleagues’ (2002) procedure, with some modifications. First, whereas Sagarin and colleagues chose to focus on inappropriate use of authority as an illegitimate (i.e., manipulative) persuasive tactic, the present research used two different persuasion tactics (appeals to freshness and scarcity). The precise nature of the persuasive tactics was not important in the present study. Rather, the goal was simply to heighten motivation by inducing participants to confront their beliefs regarding their personal vulnerability to manipulation by advertisers. Second, whereas Sagarin and colleagues’ intervention included six example ads, the present study had only one. Their primary intervention focused on teaching a heuristic for distinguishing legitimate from illegitimate authorities; as such, it was important to ensure that participants learned the rule. Because the present study did not involve teaching any such heuristic, additional practice was not deemed necessary. Finally, Sagarin and colleagues manipulated two levels of vulnerability in addition to their control condition. In the “asserted vulnerability” condition, participants were simply told they are susceptible to manipulation by advertisers. In the “demonstrated vulnerability” condition, participants were *shown* they are susceptible. Because their asserted

vulnerability condition was not sufficient to motivate resistance to illegitimate ads, this intermediate condition was not included in the present study.

In the present study, participants in both the demonstrated vulnerability and control conditions were first instructed to examine a print ad (the Wendy's® “Berry Almond Chicken Salad” ad described in Pilot Study 3) and “form an impression of it.” The ad was displayed on the screen for 30 seconds before transitioning automatically to the next phase of the manipulation. Next, participants in both conditions were asked to indicate how convincing they found the ad, on a scale from 1 (*not at all convincing*) to 7 (*extremely convincing*). This question was followed by the open-ended item “What two aspects of the ad were most important in determining how convincing you found it?” These questions were part of the vulnerability manipulation, not dependent variables; for participants in the demonstrated vulnerability condition, responses to these questions served as evidence of their vulnerability to persuasive tactics in ads.

Next, participants in the demonstrated vulnerability condition saw their previously committed answer displayed on-screen (bracketed text indicates customization based on respondents' answers to the previous questions):

*You said you found the ad [**not at all to extremely**] **convincing** ([X] on a scale from 1 to 7).*

The crux of the vulnerability manipulation consisted of the following text (adapted from Sagarin et al.):

*You may believe advertising messages affect other people, but not you. However, if you found the ad at least somewhat convincing (3), that shows **you let the advertiser manipulate you** with some very common persuasive tactics. The ad was quite subtle in its*

*use of these tactics, so if you weren't paying close attention, they probably slipped right past your radar.*

Following this feedback, demonstrated vulnerability participants received general commentary on the potential to be manipulated by the particular persuasive tactics used in this ad. Finally, participants in the vulnerability condition were directed to reconsider their open-ended responses regarding what they noticed about this ad. The full text of the vulnerability manipulation is included in the survey instrument (Appendix C).

Instead of receiving customized feedback regarding the potential to be manipulated by advertisers, participants assigned to the control condition were presented with trivia about berries (Appendix C). The purpose of this attentional control was to ensure that participants in both conditions spent about the same amount of time on this phase of the study, before proceeding to the video ad. Participants in both conditions were given the opportunity to examine the print ad again before moving on.

**Stimulus ads.** Based on the results of Pilot Study 1, four Australian video ads (30 seconds in length) were chosen as the stimulus ads for the present study. Two ads (Continental Cook-in-Bag and Uncle Toby's Oats) were used to represent an informational approach and two ads (Abbott's Village Bakery and Tip Top Bread) were used to represent an emotional approach (transcripts of all ads can be found in Appendix B). These ads were selected for approximate equivalence in persuasiveness and message strength. Each participant was assigned to view one of the four ads, and was allowed to view the ad only once. Participants were not permitted to control playback.

**Distraction stimulus.** The distraction stimulus followed the procedures described in Pilot Study 2, but with only two levels—a control condition and a distracted condition. Based on the

results of Study 2, the distracted condition consisted of six red squares which appeared individually for a half-second each at unpredictable locations on the periphery of the video screen, over the course of the 30 second video. Before proceeding to the video, participants in the distraction condition were informed that a number of red squares would appear on their computer screen around the video. They were directed to do their best to focus on the ad while also keeping an accurate count of the squares (see Appendix C for full instructions).

## **Measures**

**Thought valence.** The valence of thoughts generated in response to the target ad (i.e., cognitive responses) was measured using the thought-listing task described in Pilot Studies 1 and 2. Thought valence was calculated as the number of favorable thoughts minus the number of unfavorable thoughts; a positive score indicates positive thoughts were the dominant response, while a negative score is indicative of counterarguing.

**Perceived persuasiveness.** Based on Pilot Study 1, four items from Campbell's (1995) persuasiveness scale were used again in the present study: "If you were to use this type of product in the future, how likely are you to choose this particular brand?" and "I personally thought the BRAND featured in the commercial was \_\_\_" (*bad-good, pleasant-unpleasant, low quality-high quality*). Three additional items tested in Pilot Study 1 were used to improve the measure's face validity in relation to the construct of perceived persuasiveness (beyond overall evaluation of the ad): "I found this commercial \_\_\_" (*persuasive-unpersuasive, convincing-unconvincing, not influential-influential*).

**MIP variables.** Previous research on the Message Interpretation Process (MIP) model (e.g., Austin et al., 2002; 2006) has produced validated measures of trust, perceived realism, perceived similarity, desirability, and identification, each of which has demonstrated reasonably

high reliability among either adolescents or college students. The present study utilized variations on these measures; several of the existing items were adapted for use with adult populations (e.g., “popular” was changed to “well-liked”), and in some cases, additional items were included to enhance reliability. Unless otherwise stated, all items described below were rated on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Previous MIP research has identified two dimensions to skepticism: trust (affective) and perceived realism (cognitive). Austin and colleagues (2002) used a single item (“This ad can be trusted”) to measure the construct of trust among college students. To enhance the reliability of this trust measure, two new items were added: “I am suspicious of what the advertiser was trying to do in this commercial” (reversed) and “This commercial is misleading” (reversed). Austin and colleagues (2002) used a single item (“This ad seems realistic”) to measure specific perceived realism (i.e., in relation to a specific ad) among college students. Their study also included a four-item measure of global perceptions of realism (i.e., in relation to advertising in general;  $\alpha = .76$ ). In the present study, the single item was combined with a slightly revised version of Austin and colleagues’ global realism measure to generate a three-item specific realism scale: “This commercial seems realistic,” “This commercial is an accurate reflection of real life,” and “This commercial is a realistic reflection of how people behave.”

To address perceived similarity, Austin and colleagues (2006) used two items: “People in this ad are like people I know” and “People in this ad are like people in my family.” This two-item measure demonstrated only moderate reliability (pre-intervention  $r = .48$ , post intervention  $r = .28$ ) among adolescents. The existing two items were rephrased and four additional items were added to generate a six-item scale: “The characters in this commercial remind me of people I know,” “The characters in this commercial are like my family members,” “I know people

similar to those portrayed in this commercial,” “The characters in this commercial are similar to me,” “The characters in this commercial are like my friends,” and “This commercial accurately reflects how people like me act.”

Austin and colleagues (2006) assessed identification with a three-item measure, which demonstrated high reliability (pre-intervention  $\alpha = .80$ , post-intervention  $\alpha = .76$ ) among adolescents. Minor wording modifications were made to the existing items to produce the following five-item scale: “I would like to be like the characters portrayed in this commercial,” “The characters in this commercial do things I would like to do,” “I would like to look like people in this commercial,” “It would be nice to be as good looking as people in this commercial,” and “It would be nice to live like the characters in this commercial.”

Finally, Austin and colleagues (2007) highlighted the distinction between personally finding portrayals desirable and awareness that advertisers often use desirability-inducing tactics. To more accurately measure personal perceptions of desirability, a variation on Austin and colleagues’ (2002) four-item desirability scale ( $\alpha = .77$  among college students) was used. These items were slightly revised to more clearly tap into how the respondent personally feels about the ad, as opposed to understanding how one *should* feel about the ad. On the recommendation of Austin (personal communication, August 9, 2011), a semantic-differential format was used to avoid biasing respondents toward greater desirability: “I found this commercial to be \_\_\_” (*appealing-unappealing*), “I found the characters in this commercial to be \_\_\_” (*unattractive-attractive, bored-having fun, happy-unhappy*), and “The characters in this commercial seem like they would be \_\_\_ by their peers” (*disliked-well-liked*).

**Perceived manipulative intent.** Perceptions of undue manipulative intent were measured using a slightly modified version of an existing six-item scale (Campbell, 1995). Sagarin and

colleagues (2002) reported reliabilities for this scale ranging from  $\alpha = .87$  to  $\alpha = .95$  among college students, depending on the target ad. The revised scale included four Likert items adapted from the original scale, rated from 1 (*strongly disagree*) to 7 (*strongly agree*): “The way this commercial tries to persuade people seems acceptable to me” (reversed), “The commercial tried to manipulate the audience in ways that I don’t like,” “This commercial seemed to be trying to inappropriately control the consumer,” “The commercial tried to be persuasive without being overly manipulative” (reversed). The scale also included two semantic-differential items (“I found this commercial to be \_\_\_” (*fair-unfair, sneaky-straightforward*).

**Perceived persuasibility.** Eight items from Briñol, Rucker, Tormala, and Petty’s (2004) resistance to persuasion scale were used to measure perceptions of general persuasibility. Shakarchi and Haugtvedt (2004) validated the full measure with college students ( $\alpha = .82$ ), and reported high levels of convergent and discriminant validity with several other measures of resistance-related constructs. All items were rated on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*): “I am strongly committed to my own beliefs” (reversed), “My own beliefs are very clear” (reversed), “I find my opinions to be changeable,” “It could be said that I am likely to shift my attitudes,” “I often vary or alter my views when I discover new information,” “After forming an impression of something, it’s often hard for me to modify that impression” (reversed), “My ideas are very stable and remain the same over time” (reversed), and “I have often changed my opinions.”

**Third-person effects.** To measure perceptions of unique invulnerability (i.e., third-person effects), researchers typically use pairs of items, with one item addressing perceived media influence on oneself, and the other addressing perceived media influence on others (Perloff, 2002). The present study included five item-pairs, addressing two different types of



third-person effects: (1) those relating to the effects of the specific target ad (single item-pair), and (2) those relating to the influence of advertising and media more generally (four item-pairs). The items used to measure third-person effects in relation to the target ad (i.e., ad-specific third person effects) were: “How much do you think the video ad (commercial) you just watched affected your opinion about the product?” and “How much do you think the video ad (commercial) you just watched would affect most people’s opinions about the product?” The following items addressed third-person effects in relation to general media influence (bracketed text indicates alternate wording for ratings of oneself versus others): “Media messages influence the way [I/people] think about the world,” “[My/People’s] purchasing decisions are often influenced by what [I/they] see in ads,” “[My/People’s] behavior is influenced by what [I/they] see in ads,” and “I don’t think advertising affects [me/people] much at all” (reversed). All items were rated on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). To generate an index of the magnitude of third-person effects, “self” ratings were subtracted from “other” ratings for each item pair. Positive scores indicate the existence of a third-person effect—the perception that others are more influenced than oneself.

The majority of research (e.g., Perloff) suggests question wording and order do not influence these effects. Nonetheless, order of the self and other items was counterbalanced, and the two sets were split up to reduce the potential of anchoring effects (one set appeared before Briñol et al.’s resistance to persuasion scale, one set appeared after).

**Distractedness.** Four of the nine items tested in Pilot Study 2 were used to assess subjective distractedness during the video ad: “I was not able to give the commercial my full attention,” “I was able to concentrate on the commercial” (reversed), “I was able to focus on the commercial the entire time” (reversed), and “I had trouble following along with the

commercial.” As in Pilot Study 2, the total number of favorable and unfavorable thoughts and recall of the ad were used as proxy measures of objective distractedness. Two dichotomous measures of recall (product recall and brand recall) were generated from a single open ended item asking participants to identify the brand featured in the ad. Product recall was coded as correct if the respondent mentioned the product category (e.g., bread, oats or oatmeal), whereas brand recall was coded as correct if the respondent mentioned one or more words from the brand name (e.g., Continental, Abbott’s) *and* correctly identified the product category. Because four different ads were used in the main study, it was not feasible to include multiple choice questions pertaining to the target ad as a recall measure. Finally, as in Pilot Study 2, participants in all conditions were asked to indicate how many stimuli they counted during the video ad<sup>6</sup>, as a measure of accuracy in relation to the distraction manipulation.

**Additional measures.** Participants were asked to identify any dietary restrictions that would have rendered the product featured in the video ad inedible or extremely unappealing to them, including vegetarianism, veganism, or a gluten-free diet. In addition to the standard demographic items (sex, age, race/ethnicity, education, student status, income, and state), participants were asked a series of questions about their level of familiarity and experience with media literacy. First, all participants were asked “How familiar would you say you are with the concept of media literacy?” (I don’t know what media literacy is, not at all familiar, a little bit familiar, moderately familiar, quite familiar, extremely familiar). Those who indicated they are at least a little bit familiar were asked an open-ended question, “What does media literacy mean to you?” as well as “Have you ever had any formal education or training in media literacy?”

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<sup>6</sup> Participants were informed that “some people were asked to keep count of a number red squares” and told: “If you do not remember seeing any red squares, you can enter 0.”

Finally, those who indicated they have formal education or training were asked to select from a number of options describing their training in media literacy.

**Instructional manipulation checks.** Two instructional manipulation checks were hidden in the measures to trip up bots, as well as respondents who were rushing through the survey or otherwise not closely attending to the questions. The item “This commercial is an ad, but please ignore this statement and instead choose the ‘moderately disagree’ option” was embedded in the MIP items, and “My beliefs are correct, but please ignore this statement and instead choose the ‘slightly disagree’ option” was embedded in the items addressing perceived persuasibility.

The full survey instrument is included in Appendix C.

## CHAPTER FIVE: MAIN STUDY RESULTS

### Data Preparation

Beginning with a total sample of  $N = 1298$ , the data were screened for issues related to quality, technical problems with the online survey mechanism, and univariate outliers prior to conducting the analyses. A total of 147 participants (11.3%) were excluded for failing at least one of the two instructional manipulation checks. Of these, 88 failed one question and 59 failed both. Because the vulnerability manipulation was contingent on participants finding the print ad at least *somewhat convincing* (3 on a scale from 1 to 7), 134 participants who rated the print ad 1 (*not at all convincing*) or 2 (*slightly convincing*) were excluded (10.3%). Responses were also excluded for any of the following reasons: IP address indicated a location outside the U.S. ( $n = 39$ ); the participant reported dietary restrictions pertaining to the product shown in the video ad ( $n = 61$ )<sup>7</sup>; technical errors affecting the distractions ( $n = 25$ ), video ad ( $n = 2$ ), or print ad ( $n = 3$ ); or the participant reported having worked or been otherwise involved in advertising, marketing, or media literacy education ( $n = 7$ ).

Although participants were allowed to take up to 60 minutes, 90% fell within a relatively small range from 7.8 and 23.7 minutes, with a median time of 13.1 minutes. The validity of the results could potentially be compromised by participants who rushed through the survey, responding somewhat haphazardly, as well as those who became distracted by external stimuli. Although most of the rushed responders should have been caught by the instructional manipulation checks, a decision was made to additionally exclude participants who took an unusually short or long time to complete the survey. Because the time distribution was highly

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<sup>7</sup> Respondents were asked to indicate if they had any dietary restrictions relevant to the ad they saw, including vegetarianism, veganism, or a gluten-free diet. Vegetarians and vegans who were assigned to Continental Cook-in-Bag (chicken) were excluded, as well as vegans and gluten-free respondents assigned to either of the two bread ads.

positively skewed, it was deemed inappropriate to use a number of standard deviations from the mean as the basis for exclusion. Instead, the top and bottom 2.5% were excluded; these parameters resulted in the exclusion of 64 participants who took less than 6.9 minutes or longer than 27.6 minutes. Of these, 44 (68.8%) were already being excluded for the various reasons described above. Thus, imposing these limits on the time to complete the survey resulted in a loss of only 20 additional participants.

Finally, univariate outliers on the non-Likert variables (age, thought valence, accuracy in counting the stimuli) were identified, using a *z*-score with an absolute value greater than 3.29 as the threshold. There were six outliers on the age variable, ranging from 74 to 99; the next oldest respondent was 67. The thought valence variable had a single outlier, with a score of 19 (19 favorable thoughts and no unfavorable thoughts). The next highest score was 12, and the minimum was -9. To identify outliers on the accuracy variable, the data were first split by distraction condition and *z*-scores were calculated separately within each condition. There were no univariate outliers in the distraction condition, with counts ranging from zero to ten stimuli. The no distraction condition had eight outliers, corresponding to counts of five or more stimuli. All told, these criteria resulted in the exclusion of 389 participants (30.0%), leaving an effective sample of  $N = 909$ . The number of participants per cell ranged from 19 to 43, with a mean of 28.4; the distribution of participants across conditions is shown in Table 10.

Table 10

*Main Study Condition Assignments, N = 909*

<b>Motivation</b>	<b>Distraction</b>	<b>Ad Type</b>	<b>Ad</b>	<b>Order</b>	<b>N</b>	<b>%</b>
Control	No	Informational	Continental	Self first	30	3.3
				Other first	32	3.5
		Uncle Toby's	Self first	23	2.5	
			Other first	32	3.5	
		Emotional	Abbott's	Self first	31	3.4
				Other first	30	3.3
	Tip Top	Self first	27	3.0		
		Other first	21	2.3		
	Yes	Informational	Continental	Self first	28	3.1
				Other first	36	4.0
		Uncle Toby's	Self first	28	3.1	
			Other first	26	2.9	
Emotional		Abbott's	Self first	25	2.8	
			Other first	32	3.5	
Tip Top	Self first	34	3.7			
	Other first	27	3.0			
Vulnerability	No	Informational	Continental	Self first	33	3.6
				Other first	22	2.4
		Uncle Toby's	Self first	21	2.3	
			Other first	34	3.7	
		Emotional	Abbott's	Self first	19	2.1
				Other first	43	4.7
	Tip Top	Self first	26	2.9		
		Other first	24	2.6		
	Yes	Informational	Continental	Self first	35	3.9
				Other first	28	3.1
		Uncle Toby's	Self first	29	3.2	
			Other first	26	2.9	
Emotional		Abbott's	Self first	30	3.3	
			Other first	23	2.5	
Tip Top	Self first	27	3.0			
	Other first	27	3.0			

## Participant Demographics

Of the effective sample (after excluding poor quality data and univariate outliers) of  $N = 909$ , the majority of participants were female (64.0%), with 34.5% male. Thirteen respondents (1.4%) declined to state their sex. The sample was somewhat younger than in the pilot studies. Ages ranged from 18 to 67, with a median age of 28. The middle 50% of participants fell between the ages of 23 and 38. Nine respondents (.9%) did not list their age. As in the pilot studies, participants were instructed to select all applicable races. The sample was predominantly white (83.9%), with 6.3% identifying as black or African American, 7.5% identifying as Asian, and an additional 5.4% indicating other races (American Indian or Alaska Native, Native Hawaiian or Pacific Islander, or “Other Race”). Only 7.8% of participants self-identified as Hispanic or Latino, more than half of whom were Mexican or Mexican American.

Respondents had a high level of education overall (though somewhat lower than in the pilot studies), with 44.2% reporting at least a bachelor’s degree, and 11.1% holding a graduate degree. Three respondents (.3%) did not indicate their level of education. Twenty-eight percent of participants indicated they are currently students in a two-year, four-year, or graduate degree program. Selecting only those who indicated no one else can claim them as a dependent ( $n = 700$ ), 34.9% reported a household income less than \$30,000, 25.3% were between \$30,000 and \$50,000, 27.7% were between \$50,000 and \$100,000, and 5.9% had an income greater than \$100,000. Forty-four respondents (6.3% of those who claimed non-dependent status) declined to state their income.

Forty-eight U.S. states were represented (there were no respondents from North Dakota or Rhode Island), as well as the District of Columbia and Puerto Rico. The most highly represented states were California (9.6%), Texas (7.9%), Florida (6.5%), New York (5.8%) and

Illinois (5.0%). Together, these five states accounted for more than one-third of all responses. Ten respondents (1.1%) did not list a state.

When asked about their familiarity with the concept of media literacy, nearly two-thirds of respondents (60.9%) indicated they “don’t know what media literacy is” or were “not at all familiar.” Seventeen percent were a little bit familiar, with 13.0% rating themselves “moderately familiar,” and only 8.7% indicating they were “quite” or “extremely” familiar. Of those who stated they were at least a little bit familiar with media literacy ( $n = 355$ ), only 13.8% reported having formal education or training in media literacy, while 20.1% stated they have read or learned about media literacy on their own, and 4.2% learned about media literacy at home as children. Of those who indicated some sort of formal education or training ( $n = 49$ ), the vast majority (83.7%) reported learning about media literacy in college or post-secondary education, with 24.5% learning about media literacy in junior high or high school, and 16.3% gaining familiarity through professional development.

The 389 excluded respondents differed significantly from the remaining sample of 909 by sex and education. Males were more likely to be excluded (35.3%) than females (26.1%),  $\chi^2(1) = 11.97, p < .001$ . Specifically, males were more likely to have incorrectly answered at least one of the two instructional manipulation checks (14.0%) than females (9.1%); the sex difference was particularly pronounced for those who failed both questions (males: 7.0%; females: 2.8%). Males were also more likely to have an IP address indicating a location outside the U.S. (6.4%) than females (1.0%). In fact, 79.5% of those with an IP address outside the U.S. were male. In terms of education, excluded respondents were significantly more likely to report having a graduate degree (17.0%) than included respondents (11.1%),  $\chi^2(1) = 8.24, p < .001$ . Although none of the individual criteria for exclusion exhibited significant differences by education, those



with a graduate degree were slightly more likely to have failed at least one instructional manipulation check, rated the print ad less than *somewhat convincing*, had an IP address outside the U.S., or reported dietary restrictions pertaining to the video ad.

### **Scale Construction**

The dependent measures included a total of 57 scaled (i.e., Likert or semantic-differential) items. Twenty-two items were derived from Austin and colleagues' (e.g., Austin et al., 2002; 2006) Message Interpretation Process measures: trust (three items), perceived realism (three items), perceived similarity (six items), desirability (five items), and identification (five items). Seven items pertained to the ad's persuasiveness, six measured perceptions of undue manipulative intent, and eight items addressed perceptions of one's general persuasibility. Four items were used to assess subjective distractedness. Ten items (five self-other pairs) were used to generate the measures of third-person effects. Third-person effects in relation to the target ad were measured by a single item-pair, whereas four item-pairs addressed third-person effects pertaining to general media influence.

Prior to scale construction, each item was first screened for normality. Although several items exhibited significant skew, examination of the distributions revealed the violations were by-and-large not severe. Three items with extreme levels of skew were dropped. These included two perceived persuasibility items with positive skew ("I am strongly committed to my own beliefs" and "My own beliefs are very clear") and one negatively skewed desirability item ("I found the characters in this commercial to be [happy-unhappy]"). From the remaining 54 items, eleven scales were constructed based on the hypothetical constructs, as described in the measures section. The correlations among these scales are shown in Table 11, with reliabilities along the diagonal.

Table 11

*Matrix of Correlations Among Scales, N = 909<sup>a</sup>*

Scale	1	2	3	4	5	6	7	8	9	10	11
1 Persuasiveness (7)	.91	.55	.49	.53	.50	.54	.67	.02	-.12	-.15	-.13
2 Trust (3)		.78	.74	.60	.40	.33	.45	-.03	-.12	-.09	-.13
3 Manip. Intent (6)			.89	.50	.38	.36	.50	.02	-.07	-.06	-.09
4 Realism (3)				.88	.71	.49	.47	-.01	-.03	-.10	-.11
5 Similarity (6)					.93	.68	.53	-.01	-.08	-.14	-.06
6 Identification (5)						.88	.65	.01	-.09	-.17	.03
7 Desirability (4)							.76	.03	-.03	-.05	-.13
8 Persuasibility (6)								.82	-.05	-.17	.02
9 Ad-spec. TPE (2) <sup>b</sup>									---	.16	.05
10 General TPE (8) <sup>b</sup>										.85	-.09
11 Distractedness (4)											.90

<sup>a</sup> The number of items comprising each scale is shown in parentheses. Values along the diagonal represent scale reliabilities. Shaded cells indicate scale intercorrelations that approach or exceed the maximum expected value (calculated as the product of the reliabilities of the corresponding scales). The dashed region includes seven scales exhibiting considerable overlap.

<sup>b</sup> Ad-specific and general third-person effects were measured by difference-score indices generated from pairs of items (i.e., two items equals a single index). The ad-specific third person effects measure, with only one index, does not have a reliability.

All scales were highly reliable, ranging from  $\alpha = .76$  to  $\alpha = .93$ . The measures of perceived persuasibility, ad-specific third-person effects, general third-person effects, and subjective distractedness shared little variance with the other scales. However, the first seven scales in Table 11 (persuasiveness, trust, manipulative intent, realism, similarity, identification, and desirability) exhibited considerable overlap. The relationship between trust and manipulative intent was particularly strong ( $r = .74$ ), exceeding the maximum expected value of  $r = .69$ . Based on the degree of intercorrelation, along with acceptable face validity, a decision was made to consolidate these two scales into a single measure of trust (or distrust). Perceived similarity was

also strongly associated with both realism and identification, and desirability was highly correlated with identification and persuasiveness. Given the degree of overlap among these measures, the 34 items comprising the remaining six scales (persuasiveness, realism, similarity, identification, desirability, and the consolidated distrust/manipulative intent scale) were submitted to an exploratory factor analysis to evaluate whether additional consolidation was justified.

**Factor analysis.** The Kaiser-Meyer-Olin measure of sampling adequacy had a value of .952, and Bartlett's test of sphericity was significant,  $\chi^2(561) = 23110.84, p < .001$ , indicating the strength of relationships among the variables was significantly strong to conduct a factor analysis. With principal axis factoring (PAF) as the extraction technique, all factors with eigenvalues greater than 1.0 were extracted, and direct oblimin (oblique) rotation was performed. A five-factor solution was produced, explaining 61.6% of the variance of the 34 items. Although the majority of communalities exceeded .50, several items had low communalities or loaded on two or even three factors. For these reasons, seven additional items were dropped: one persuasiveness item ("I personally thought the BRAND featured in the commercial was [pleasant-unpleasant]"), three distrust items ("This ad can be trusted," "The commercial tried to be persuasive without being overly manipulative," and "The way this commercial tries to persuade people seems acceptable to me"), and three desirability items ("I found the characters in this commercial to be [bored-having fun]," "I found this commercial to be [appealing-unappealing]," and "The characters in this commercial seem like they would be [disliked-well-liked] by their peers").

The factor analysis was run again with the same constraints, but excluding the seven items noted above. This time, a four-factor solution was produced, with 63.4% of variance

explained for the 27 items. Substantial item-complexity remained, particularly among the identification items. The factor analysis was run a third time after dropping four more items: one from the realism scale (“This commercial seems realistic”) and three from the identification scale (“I would like to be like the characters portrayed in this commercial,” “The characters in this commercial do things I would like to do,” and “It would be nice to live like the characters in this commercial”). The remaining 23 items included only two of the original perceived realism items, two identification items, and one desirability item. The resulting four-factor solution provided the best fit, with 65.0% of variance explained and virtually all communalities exceeding .50, though there was still some item-complexity. The factors and loadings generated by the four-factor oblique solution are shown in Table 12. For interpretive clarity, loadings less than .50 are not shown.

Table 12

*Factor Loading Table with Communalities (h<sup>2</sup>) for Four-Factor Solution with PAF Extraction**and Direct Oblimin Rotation, N = 909*

	<b>F1</b>	<b>F2</b>	<b>F3</b>	<b>F4</b>	<b>h<sup>2</sup></b>
The characters in this commercial are like my friends	.846	---	---	---	.729
This commercial accurately reflects how people like me act	.835	---	.503	---	.716
The characters in this commercial remind me of people I know	.834	---	---	---	.702
I know people similar to those portrayed in this commercial	.832	---	---	---	.695
The characters in this commercial are similar to me	.793	---	---	---	.639
This commercial is a realistic reflection of how people behave	.790	---	---	---	.639
The characters in this commercial are like my family members	.780	---	---	---	.610
This commercial is an accurate reflection of real life	.719	---	---	---	.578
The commercial tried to manipulate the audience in ways that I don't like	---	.837	---	---	.703
This commercial seemed to be trying to inappropriately control the consumer	---	.829	---	---	.698
I found this commercial to be [fair-unfair]	---	.801	---	---	.658
I found this commercial to be [sneaky-straightforward]*	---	.780	---	---	.611
I am suspicious of what the advertiser was trying to do in this commercial	---	.700	---	---	.498
This commercial is misleading	---	.689	---	---	.493
I found this commercial [persuasive-unpersuasive]*	---	---	.879	---	.773
I found this commercial [convincing-unconvincing]*	---	---	.861	---	.742
I found this commercial [not influential-influential]	---	---	.824	---	.680
If you were to use this type of product in the future, how likely are you to choose this particular brand?	---	---	.791	---	.626
I personally thought the brand featured in the commercial was [bad-good]	---	---	.750	---	.566
I personally thought the brand featured in the commercial was [low quality-high quality]	---	---	.678	---	.465
It would be nice to be as good looking as people in this commercial	---	---	---	.941	.888
I would like to look like people in this commercial	---	---	---	.906	.829
I found the characters in this commercial to be [unattractive-attractive]	---	---	---	.609	.417

\* Item reverse coded

Total Percent Variance: 65.0%

Factor labels:

- F1 Perceived realism/similarity
- F2 Distrust/perceived manipulative intent
- F3 Perceived persuasiveness
- F4 Perceived attractiveness

The results of the factor analysis supported consolidating the realism and similarity items into a single scale (Factor 1). Factor 2 included the two remaining items from the original trust scale, along with those addressing perceptions of undue manipulative intent. Factor 3 included the remaining six persuasiveness items. Finally, Factor 4, with two of the original identification items and one of the original desirability items, could more accurately be described as addressing the attractiveness of the characters in the ad.

**Final scales.** The scales derived from the factor analysis were highly reliable ( $\alpha = .86$  to  $\alpha = .94$ ). The results of the factor analysis lead to some strong recommendations, including dropping items with low loadings on their respective factors or large cross-loadings (including several of the desirability items). That said, a great deal of information might be lost by allowing the results of the factor analysis to drive scale construction. To avoid this situation, the results of the factor analysis were balanced with a more theory-driven scale construction approach. The attractiveness scale recommended by the factor analysis was retained as a replacement for the theoretical desirability construct, but realism and similarity were kept as separate scales, as proposed by the MIP model. The previously dropped realism item (“This commercial seems realistic”) was brought back to give this scale three items. Finally, the three identification items dropped during the factor analysis were reinstated as an additional scale, despite a high degree overlap with attractiveness and similarity. The correlations between each of these six final scales, along with the previously discussed persuasibility, ad-specific and general third-person effects, and distractedness measures, are shown in Table 13.

Table 13

*Descriptives and Matrix of Correlations Among Final Scales, N = 909<sup>a</sup>*

Scale	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1 Persuasiveness (6)	4.44	1.33	.89	-.49	.54	.52	.60	.40	.02	-.12	-.16	-.13
2 Distrust (6)	5.21	1.22		.90	-.52	-.36	-.33	-.25	.01	.11	.06	.12
3 Realism (3)	3.88	1.53			.86	.71	.54	.33	-.01	-.03	-.10	-.11
4 Similarity (6)	3.41	1.47				.93	.70	.50	-.01	-.08	-.14	-.06
5 Identification (3)	4.12	1.57					.87	.62	.01	-.07	-.16	.02
6 Attractiveness (3)	4.21	1.41						.86	.00	-.07	-.12	-.00
7 Persuasibility (6)	4.05	1.01							.82	-.05	-.17	.02
8 Ad-spec. TPE (2) <sup>b</sup>	0.51	1.51								---	.16	.05
9 General TPE (8) <sup>b</sup>	1.80	1.37									.85	-.09
10 Distractedness (4)	2.29	1.55										.90

<sup>a</sup> The number of items comprising each scale is shown in parentheses. Values along the diagonal represent scale reliabilities.

<sup>b</sup> Ad-specific and general third-person effects were measured by difference-score indices generated from pairs of items (i.e., two items equals a single index). The ad-specific third person effects measure, with only one index, does not have a reliability.

The reliabilities of all scales were consistently high (ranging from  $\alpha = .76$  to  $\alpha = .94$ ) across participant sex, age, experimental conditions, and for the final sample versus those participants excluded for various reasons.

### Dependent Variables

In addition to the ten scales described above (and shown in Table 13), the dependent variables included thought valence, calculated as the total number of favorable thoughts minus unfavorable thoughts. Values on this variable ranged from -9 to 12, with a median of 2 ( $M = 1.79$ ,  $SD = 3.01$ ). With the exception of the subjective distractedness measure, all scales were approximately normally distributed. As in Pilot Study 2, the distribution of subjective distractedness was highly positively skewed and approximately bimodal, with ratings clustered at

the extreme low end of the scale in the no distraction condition (the distraction condition had greater variability in ratings). A square root transformation did little to improve the distribution of this variable. Because this measure was only intended to be used as a check on the distraction manipulation, nonparametric tests were used for this purpose. The final measures are listed in Appendix D.

### **Manipulation Checks and Order Effects**

Because the ad type distinction (informational versus emotional ads) was adequately covered in Pilot Study 1, the present study did not include a manipulation check on this variable. Pilot Study 2 examined the effect of varying the level of distraction, but the results were somewhat ambiguous, particularly for the objective distractedness measure. As such, the present study included a secondary check on the distraction manipulation (i.e., the effects of distraction on recall, total thoughts, and subjective distractedness). Finally, although Pilot Study 3 verified the convincingness of the print ad used as part of the vulnerability manipulation, it did not address the effectiveness of the manipulation itself. The vulnerability manipulation was designed to operate by reducing third-person effects regarding media influence, thereby increasing motivation to process the video ad more thoroughly. In the present study, the two measures of third-person effects (ad-specific and general) were used as a check on the vulnerability manipulation.

**Distraction.** The results of the manipulation check on the distraction variable were consistent with Pilot Study 2. Chi-square analyses revealed significant effects of distraction on both brand and product recall. Participants in the distraction condition were nearly twice as likely to incorrectly identify the product category (8.2%) than those in the no distraction condition



(4.2%),  $\chi^2(1) = 6.19, p = .013$ . Similarly, those in the distraction condition were more likely to incorrectly identify the brand (76.8%) than those in the no distraction condition (71.0%),  $\chi^2(1) = 3.98, p = .046$ . There was extensive variation in brand recall across ads, ranging from 9.8% for Continental Cook-in-Bag to 41.8% for Tip Top Bread. Upon further examination, the effect of distraction on brand recall was evident only in the Tip Top Bread condition,  $\chi^2(1) = 9.49, p = .002$ . Among participants assigned to this ad, more than half of those in the no distraction condition (53.1%) correctly identified the brand, versus 32.2% of those in the distraction condition.

Because the distributions of total thoughts and subjective distractedness were positively skewed, nonparametric Mann-Whitney  $U$  tests were conducted for these variables. The effect of distraction condition on total thoughts barely achieved significance,  $U = 95404.0, z = 2.01, p = .044$ . Participants in the no distraction condition listed a median of 4 thoughts, while those in the distraction condition listed a median of 3. Distraction condition had a significant impact on subjective distractedness,  $U = 45832.0, z = 14.98, p < .001$ , such that those in the distraction condition rated themselves more distracted (median = 3.0) than those in the no distraction condition (median = 1.0). It is noteworthy that the standard deviation in the distraction condition (1.70) was twice that in the no distraction condition (0.84); the no distraction condition had very little variation in ratings of distractedness.

Limiting the sample to those who counted the red stimuli within two of the actual number ( $n = 840$ ) did not alter the results for subjective distractedness, but did strengthen the effect of distraction on total relevant thoughts,  $U = 79675.0, z = 2.38, p = .017$ . The medians in each condition remained the same, however. The proportions of respondents who correctly identified

the product and brand in each condition remained approximately the same, but the overall effect of distraction on brand recall was rendered non-significant.

**Vulnerability.** Before conducting checks on the vulnerability manipulation, the relevant dependent variables were first examined for potential order effects. The order of presentation of the self and other items used to generate the measures of third-person effects was counterbalanced in the survey instrument, with the perceived persuasibility items inserted between the two sets. There were no significant order effects on any of the relevant variables.

To confirm the existence of third-person effects, paired *t*-tests were conducted to compare self and other ratings on both the ad-specific and general measures. The results indicate highly significant overall third-person effects on both measures. Participants rated others more affected by the specific target ad ( $M = 4.50, SD = 1.27$ ) than themselves ( $M = 4.00, SD = 1.71$ ),  $t(908) = 10.08, p < .001$ . The third-person effect was particularly pronounced for perceptions of general media influence,  $t(908) = 39.03, p < .001$ . Others were perceived to be more influenced by media messages in general ( $M = 5.94, SD = .78$ ) than oneself ( $M = 4.13, SD = 1.37$ ).

Finally, to examine the effect of the vulnerability manipulation on third-person effects, the self-rating was subtracted from the corresponding other-rating, generating five indices of third-person effects. The four indices pertaining to general media influence were consolidated into a single scale, as described previously. The vulnerability manipulation did not affect the general media influence measure or perceived persuasibility, but had a significant effect on the ad-specific measure of third-person effects,  $t(846.1) = 3.55, p < .001$ . The effect was opposite to the hypothesized direction, however, such that third-person effects were more pronounced in the vulnerability condition ( $M = 0.68, SD = 1.67$ ) than the control condition ( $M = 0.33, SD = 1.31$ ). This effect was entirely attributable to ratings of the ad's influence on oneself,  $t(907) = 4.26$ ,

$p < .001$ . Relative to the control condition, the vulnerability manipulation reduced, rather than increased, respondents' beliefs that they were influenced by the target ad. Mean self and other ratings on the ad-specific measure in each condition are shown in Table 14, with standard deviations in parentheses.

Table 14

*Mean Self and Other Ratings on Ad-Specific Measures (SDs in Parentheses), N = 909*

	Self	Others
Control	4.23 (1.69)	4.56 (1.27)
Vulnerability	3.75 (1.71)	4.44 (1.26)

### **Effects of Motivation and Ability**

The first two research questions (1a and 1b) asked how specific barriers to motivation and ability affect a variety of variables conceptualized as intermediate media literacy outcomes, and how these barriers might interact in their effects. To address these questions, a multivariate analysis of covariance (MANCOVA) was conducted with ten dependent variables:

(1) persuasiveness, (2) distrust, (3) perceived realism, (4) perceived similarity, (5) identification, (6) attractiveness, (7) perceived persuasibility, (8) ad-specific third-person effects, (9) general media influence third-person effects, and (10) thought valence. The independent variables were vulnerability condition (control or demonstrated vulnerability), distraction condition (distracted or not distracted), ad type (informational or emotional), and ad replicate (two exemplar ads of each type), which was nested within the ad type variable. Although there was no evidence of order effects on the relevant dependent variables, order was included as a covariate, along with participant sex and age. Two-way interactions among the three key independent variables

(vulnerability, ad type, and distraction) were included in the model. Analyses were conducted using SPSS GLM.

### **Data Screening**

Prior to conducting the formal analyses, the data were screened for multivariate assumptions. A total of 18 participants with missing data on participant sex or age were deleted listwise. Univariate outliers on the non-Likert variables had already been excluded during the initial data screening (along with poor quality data). To identify multivariate outliers, Mahalanobis' distance was calculated from the ten dependent variables. Fourteen cases exceeded the critical  $\chi^2(10)$  value of 29.59 ( $p = .001$ ). These cases were examined individually and a decision was made to drop the nine with the largest Mahalanobis' distances (those exceeding 33). The majority of these cases had very high ratings on some of the MIP variables, combined with very low ratings on others, or negative thought valence along with high perceived persuasiveness. The final sample for all remaining analyses was  $N = 882$ .

Box's  $M$  was significant at  $p < .001$ , indicating a violation of the assumption of homogeneity of variance-covariance matrices. Although there was variation in the cell sizes, they were quite large (the smallest cell had 19 cases, more than twice the number of dependent variables). None of the interactions between the covariates and independent variables was significant, so it was safe to assume homogeneity of regression. To avoid inflation of Type I error, the alpha level was set at  $p = .005$  for all multivariate and univariate analyses, and Pillai's trace, which is robust to violations of multivariate normality, was used as the test statistic.

### **Multivariate Results**

As shown in Table 15, vulnerability, ad type, and ad replicate all had significant multivariate effects on the ten dependent variables at the  $p < .001$  level, controlling for order,

participant sex, and age. There was no significant effect of distraction, and none of the two-way interactions was significant. Age was significantly associated with the dependent variables, but order and participant sex were not. To further examine the nature of these multivariate effects, univariate ANOVAs were conducted for each of the ten dependent variables, excluding the interaction terms.

Table 15

*Results of Multivariate Tests on Ten DVs (Order, Sex, and Age as Covariates), N = 882*

Source	<i>F</i>	df	<i>p</i>	Partial $\eta^2$
Covariates				
Order	1.801	10/861	.057	.020
Sex	1.947	10/861	.036	.022
Age	4.503***	10/861	< .001	.050
IVs				
Vulnerability	12.937***	10/861	< .001	.131
Ad Replicate (Ad Type)	8.170***	20/1724	< .001	.087
Ad Type	13.408***	10/861	< .001	.135
Distraction	1.631	10/861	.093	.019
Interactions <sup>a</sup>				
Motivation x Ad Type	0.926	10/861	.509	.011
Motivation x Distraction	0.642	10/861	.778	.007
Ad Type x Distraction	1.177	10/861	.302	.013

\*\*\*  $p < .001$

<sup>a</sup> Because only two-way interactions were hypothesized, only these interactions were included in the model.

## Univariate Results

There were no *a priori* hypotheses regarding participant age, but age was positively associated with perceived realism,  $F(1,873) = 15.02$ ,  $p < .001$ , attractiveness,  $F(1,873) = 14.38$ ,  $p < .001$ , and thought valence,  $F(1,873) = 10.44$ ,  $p = .001$ . Relative to those 32 or younger,

participants aged 33 or older found the ads more realistic (older:  $M = 4.10$ ,  $SD = 1.56$ ; younger:  $M = 3.75$ ,  $SD = 1.50$ ), the characters more attractive (older:  $M = 4.32$ ,  $SD = 1.39$ ; younger:  $M = 4.14$ ,  $SD = 1.39$ ), and tended toward more positive thoughts (older:  $M = 2.11$ ,  $SD = 3.26$ ; younger:  $M = 1.63$ ,  $SD = 2.78$ ).

Likewise, no hypotheses were put forward regarding the ad replicate variable. This variable was nested in ad type to control for any differences between exemplars of each type. The individual exemplars differed significantly on the majority of the dependent variables, including: persuasiveness,  $F(2,873) = 10.99$ ,  $p < .001$ , realism,  $F(2,873) = 8.77$ ,  $p < .001$ , similarity,  $F(2,873) = 13.50$ ,  $p < .001$ , identification,  $F(2,873) = 44.43$ ,  $p < .001$ , attractiveness,  $F(2,873) = 26.68$ ,  $p < .001$ , and thought valence,  $F(2,873) = 5.47$ ,  $p < .004$ . As shown in Table 16, the informational ads differed on each of these variables, such that Continental Cook-in-Bag was rated higher than Uncle Toby's Oats in persuasiveness,  $t(447) = 4.13$ ,  $p < .001$ , realism,  $t(447) = 3.65$ ,  $p < .001$ , similarity,  $t(446.1) = 5.03$ ,  $p < .001$ , identification,  $t(447) = 8.27$ ,  $p < .001$ , and attractiveness,  $t(428.9) = 3.49$ ,  $p = .001$ . The difference between the two informational ads in thought valence was marginally significant,  $t(447) = 2.75$ ,  $p = .006$ , such that the thoughts elicited by Continental Cook-in-Bag were more favorable. The emotional ads differed only in that Abbott's Village Bakery was rated significantly higher than Tip Top Bread in identification,  $t(431) = 4.15$ ,  $p < .001$ , and attractiveness,  $t(410.5) = 6.14$ ,  $p < .001$ .

Table 16

*Mean Ratings of Each Ad (Standard Deviations in Parentheses) and Results of T-Tests Within Each Ad Type, N = 882*

	Informational		Emotional	
	Continental Cook-in-Bag (n = 237)	Uncle Toby's Oats (n = 212)	Abbott's Village Bakery (n = 226)	Tip Top Bread (n = 207)
Persuasiveness	4.57 (1.41)	4.03 (1.34)***		
Realism	4.02 (1.57)	3.48 (1.51)***		
Similarity	3.44 (1.52)	2.77 (1.30)***		
Identification	4.32 (1.50)	3.19 (1.38)***	4.76 (1.46)	4.18 (1.45)***
Attractiveness	4.18 (1.27)	3.74 (1.39)**	4.84 (1.25)	4.04 (1.44)***
Thought Valence	1.96 (3.14)	1.14 (3.18) <sup>†</sup>		

<sup>†</sup>  $p < .01$ , \*\*  $p < .005$ , \*\*\*  $p < .001$

The results of the univariate tests of the effects of the three key independent variables on each of the ten dependent variables are described in turn below. Differences between the exemplars of each ad type were controlled for in all univariate analyses, along with order, participant sex, and age. The means and standard deviations for each dependent variable in the different conditions are shown in Table 17, and the relevant univariate statistics are presented in Table 18.

**Hypothesis 1.** Consistent with the hypotheses, relative to the control condition, the vulnerability condition decreased perceived persuasiveness, identification, and attractiveness, increased distrust, and elicited more negative thoughts. As shown in Table 17, the effect of the vulnerability manipulation was particularly pronounced for distrust; participants in the vulnerability condition rated the ads more than two-thirds of a standard deviation higher in distrust than those in the control condition. Although no effects were hypothesized for perceived

realism or similarity, these were significantly reduced in the vulnerability condition as well. It was hypothesized that the vulnerability condition would increase perceived persuasibility and reduce third person effects. Vulnerability had no significant effect on perceived persuasibility or third-person effects in relation to general media influence. Although there was a significant effect of vulnerability on ad-specific third-person effects, it was opposite to the hypothesized direction.

**Hypothesis 2.** As hypothesized, the emotional ads were perceived to be more persuasive, similar, attractive, and elicited greater identification. The effects of ad type on perceived realism and thought valence were in the hypothesized direction, but did not reach the  $p < .005$  level of statistical significance. It was hypothesized that distrust would be reduced for the emotional ads, but the reverse was true; the emotional ads were rated less trustworthy than the informational ads. As expected, there were no significant effects of ad type on perceived persuasibility or third-person effects (either general or ad-specific).

**Hypothesis 3.** Distraction was hypothesized to enhance persuasiveness, perceived realism and similarity, identification, and desirability, reduce distrust, and elicit a less negative response (i.e., reduce counterarguing). The multivariate test indicated no significant effect of distraction, so no univariate analyses were conducted.

**Hypotheses 4, 5, and 6.** Two-way interactions were hypothesized between vulnerability, distraction, and ad type. Because the multivariate analysis found no significant interactions, univariate interactions were not tested.



Table 17

*Mean Ratings on each of Ten DVs by Condition (SDs in Parentheses), N = 882*

	Vulnerability		Ad Type	
	Control (n = 451)	Vulnerability (n = 431)	Informational (n = 449)	Emotional (n = 433)
Persuasiveness	4.74 (1.26)	4.15 (1.31)	4.32 (1.40)	4.59 (1.21)
Distrust	2.39 (1.07)	3.19 (1.20)	2.63 (1.12)	2.94 (1.27)
Realism	4.19 (1.55)	3.56 (1.43)	3.76 (1.56)	4.00 (1.48)
Similarity	3.60 (1.47)	3.22 (1.44)	3.12 (1.45)	3.71 (1.42)
Identification	4.37 (1.50)	3.87 (1.57)	3.79 (1.55)	4.48 (1.48)
Attractiveness	4.35 (1.37)	4.06 (1.40)	3.97 (1.35)	4.46 (1.40)
Persuasibility	4.11 (0.98)	4.01 (1.02)	4.13 (0.95)	3.99 (1.04)
Ad-Specific TPE	0.35 (1.28)	0.73 (1.62)	0.52 (1.50)	0.56 (1.43)
General TPE	1.72 (1.32)	1.85 (1.39)	1.82 (1.38)	1.75 (1.33)
Thought Valence	2.16 (2.87)	1.44 (3.05)	1.57 (3.18)	2.05 (2.73)

### Stepdown Analysis

To supplement the results of the univariate analyses, a Roy-Bargmann stepdown analysis was conducted. To allow for the nested ad replicate variable, the stepdown analysis was conducted in SPSS GLM through a series of ten sequential ANCOVAs. Based on theoretical importance, the dependent variables were analyzed in the order shown in Table 18. Because no significant interactions were found in the multivariate analysis, interactions between the independent variables were not tested. For all analyses, participant age, sex, order, and the ad replicate variable (nested within ad type) were included as covariates. The dependent variable in each analysis was included as a covariate in all subsequent analyses. The results of the stepdown

tests of the effects of the three key independent variables on each successive dependent variable are shown in Table 18.

The stepdown results for the vulnerability manipulation suggest this variable primarily affected persuasiveness and distrust. The univariate effects of vulnerability were significant ( $p < .005$ ) for persuasiveness, distrust, identification, attractiveness, realism, similarity, thought valence, and ad-specific third-person effects. However, after adjusting for the effects of the manipulation on persuasiveness and distrust, the effects on the other dependent variables were reduced to near zero. Only the effects of the vulnerability manipulation on ad-specific third-person effects approached statistical significance ( $p = .016$ ) after adjusting for its effects on persuasiveness and distrust.

The results suggest ad type primarily influenced perceived persuasiveness, distrust, and identification. The univariate effects of ad type on attractiveness and similarity were quite substantial, but when adjusted for effects on higher priority dependent variables, these effects were non-significant.

Table 18

*Results of Univariate and Stepdown Tests for each DV (No Interaction Terms), N = 882*

IV	DV	Univariate		Stepdown		Partial $\eta^2$
		<i>F</i>	df	<i>F</i>	df	
Vulnerability	Persuasiveness	48.014***	1/873	48.014***	1/873	.052
	Distrust	111.737***	1/873	64.005***	1/872	.068
	Identification	26.093***	1/873	0.158	1/871	.000
	Attractiveness	10.609**	1/873	0.097	1/870	.000
	Realism	43.252***	1/873	0.167	1/869	.000
	Similarity	16.245***	1/873	3.331	1/868	.004
	Thought Valence	13.638***	1/873	1.391	1/867	.002
	Ad-Specific TPE	14.298***	1/873	5.852	1/866	.007
	General TPE	1.757	1/873	0.018	1/865	.000
	Persuasibility	2.505	1/873	2.453	1/864	.003
Ad Type	Persuasiveness	11.939**	1/873	11.939**	1/873	.013
	Distrust	17.252***	1/873	44.708***	1/872	.049
	Identification	55.700***	1/873	53.142***	1/871	.058
	Attractiveness	30.714***	1/873	3.131	1/870	.004
	Realism	7.278 <sup>†</sup>	1/873	2.510	1/869	.003
	Similarity	42.292***	1/873	6.536	1/868	.007
	Thought Valence	7.039 <sup>†</sup>	1/873	0.121	1/867	.000
	Ad-Specific TPE	0.319	1/873	0.921	1/866	.001
	General TPE	0.548	1/873	0.567	1/865	.001
	Persuasibility	4.449	1/873	4.595	1/864	.005
Distraction	Persuasiveness	0.115	1/873	0.115	1/873	.000
	Distrust	0.148	1/873	0.062	1/872	.000
	Identification	2.851	1/873	5.481	1/871	.006
	Attractiveness	0.008	1/873	1.410	1/870	.002
	Realism	0.013	1/873	0.429	1/869	.000
	Similarity	0.242	1/873	0.008	1/868	.000
	Thought Valence	5.207	1/873	7.892 <sup>†</sup>	1/867	.009
	Ad-Specific TPE	0.003	1/873	0.048	1/866	.000
	General TPE	0.000	1/873	0.020	1/865	.000
	Persuasibility	0.863	1/873	1.154	1/864	.001

<sup>†</sup>  $p < .01$ , \*\*  $p < .005$ , \*\*\*  $p < .001$

The stepdown results for distraction provide some evidence that the manipulation may have been effective. After adjusting for the effects of distraction on persuasiveness, distrust, and the other high-priority dependent variables, distraction had a marginally significant effect on thought valence ( $p = .005$ ). Although this effect was highly partialled, it was in the expected direction; the valence of thoughts was less negative (i.e., reduced counterarguing) in the distraction condition.

### **Mediators and Moderators of Persuasiveness**

Research questions 2a and 2b addressed potential mediators and moderators of persuasiveness, and the extent to which these relationships are moderated by variations in ability.

#### **Mediation Analyses**

It was hypothesized that perceived persuasibility and third-person effects (ad-specific and general) mediate the effect of the vulnerability manipulation on persuasiveness. These mediation hypotheses were evaluated using Preacher and Hayes' (2008) *INDIRECT* macro for SPSS. Persuasiveness was entered as the dependent variable, with vulnerability condition as the independent variable, and order, participant sex, and age as covariates. The total (i.e., overall, without regard to any mediators) effect of the vulnerability manipulation on persuasiveness (*path c*) was significant ( $B = -.591, t = 6.84, p < .001$ ). That is, as expected, persuasiveness was lessened in the vulnerability condition. The three hypothesized mediators of this relationship (persuasibility and the two third-person effects variables) were first tested in separate models, and then together in a single model.

**Hypothesis 7.** For the test of persuasibility as a potential mediator, neither *path a* (effect of the vulnerability manipulation on persuasibility) nor *path b* (relationship between persuasibility and persuasiveness) achieved statistical significance. Moreover, the bias corrected

95% confidence interval (1000 bootstrap resamples) for the indirect effect of vulnerability on persuasiveness through persuasibility included zero (-.0090 to .0170), indicating persuasibility did not mediate the effect of the vulnerability manipulation on persuasiveness.

**Hypothesis 8.** Vulnerability had no significant effect on general third-person effects (*path a*). *Path b* (the relationship between general third-person effects and persuasiveness) was significant, but opposite to the hypothesized direction ( $B = -.137, t = -4.32, p < .001$ ). That is, greater perceived vulnerability to general media influence was associated with increased, rather than decreased, persuasiveness. The 95% confidence interval around the indirect effect through general third-person effects included zero (-.0499 to .0080), indicating the effect of vulnerability on persuasiveness was not mediated by general third person effects.

Vulnerability did have a significant effect on ad-specific third-person effects (*path a*;  $B = .368, t = -3.75, p = .002$ ), though this was in the opposite direction of the hypothesized effect. Rather than reducing third-person effects in relation to the target ad, third-person effects were increased in the vulnerability condition relative to the control condition. In other words, as with general third-person effects, the path from ad-specific third-person effects to persuasiveness (*path b*) was significant, but opposite to the direction hypothesized ( $B = -.128, t = -4.37, p < .001$ ), such that third-person effects were associated with reduced persuasiveness. The 95% confidence interval around the indirect path through ad-specific third-person effects did not include zero (-.1030 to -.0184), indicating this variable significantly mediated the effect of the vulnerability manipulation on persuasiveness. That said, this mediation operated counter to the direction hypothesized. Rather than reducing third-person effects and thereby reducing persuasiveness, the vulnerability manipulation led to increased third-person effects (i.e., reduced

perceptions of vulnerability), which was, counterintuitively, associated with reduced persuasiveness.

The mediation model was run a final time with all three hypothesized mediators. The results of this analysis were consistent with the single-mediator models, and are shown in Figure 9, with solid lines representing significant paths and dashed lines representing non-significant paths. Accounting for the relationships between the various mediators and persuasiveness reduced the effect of vulnerability on persuasiveness from  $B = -.591$  (*path c*) to  $B = -.540$  (*path c'*, shown in parentheses). Although the direct path remained highly significant ( $t = 6.31$ ,  $p < .001$ ), the results suggest ad-specific third-person effects partially mediated the effect of the vulnerability manipulation on persuasiveness.

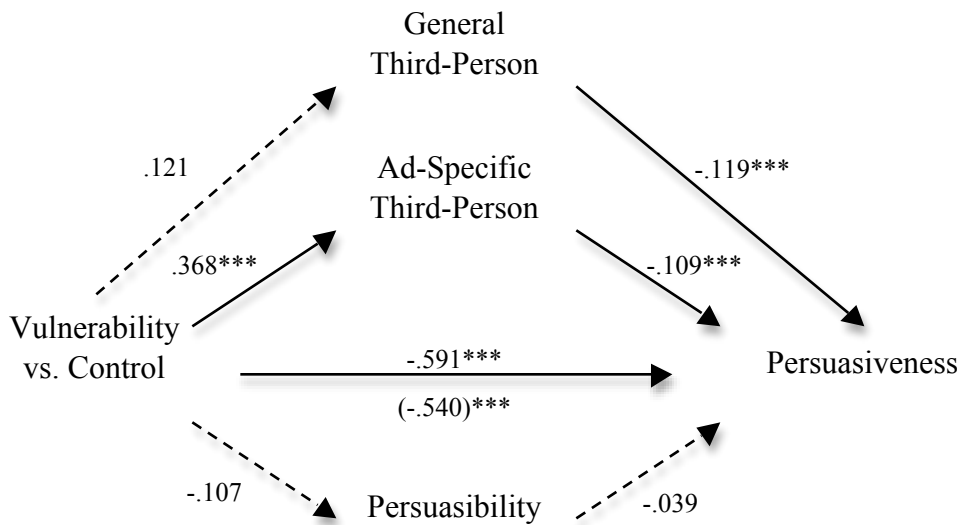


Figure 9. The effect of the vulnerability manipulation on persuasiveness was partially mediated by ad-specific third-person effects, but the mediator worked in the opposite direction of that hypothesized,  $N = 882$ . The total effect (*path c*) is shown above the arrow, while the direct effect (*path c'*) is shown below the arrow in parentheses. (\*\*\*)  $p < .001$

## **Moderation Analyses**

Perceptions of persuasibility and third-person effects (ad-specific and general) were hypothesized to moderate the relationship between perceptions of manipulative intent (i.e., distrust) and persuasiveness. These moderation hypotheses were evaluated using hierarchical regression. Three separate regression models were constructed to predict persuasiveness from distrust, with three potential moderators (perceived persuasibility, ad-specific third-person effects, and general third-person effects). The control variables (order, participant sex, age, and ad replicate) were entered on the first step. Distrust was entered on the second step, along with the hypothesized moderator. Finally, the interaction between distrust and the hypothesized moderator was entered on the third-step. All variables were standardized prior to entry in the model and calculation of interaction terms.

**Hypothesis 9.** Hypothesis 9 was not supported, as there was no significant interaction between distrust and persuasibility.

**Hypothesis 10.** This hypothesis was partially supported. There was no significant interaction between distrust and general third-person effects, but ad-specific third-person effects did moderate the relationship between distrust and persuasiveness ( $B = .125$ ,  $t = 4.91$ ,  $p < .001$ ). To investigate the nature of this interaction, simple slopes analyses were conducted. As shown in Figure 10, for those exhibiting low third-person effects ( $z = -1$ ), the relationship between distrust and persuasiveness was stronger ( $B = -.609$ ) than for those exhibiting high third-person effects ( $z = 1$ ;  $B = -.353$ ), though both slopes differed significantly from zero at  $p < .001$ . In other words, distrust was more strongly associated with reduced persuasiveness when perceptions of the ad's influence on oneself (relative to others) was high. As hypothesized, the negative relationship

between distrust and persuasiveness was attenuated for those who exhibited strong third-person effects (i.e., those who believed themselves to be relatively unaffected by the ad).

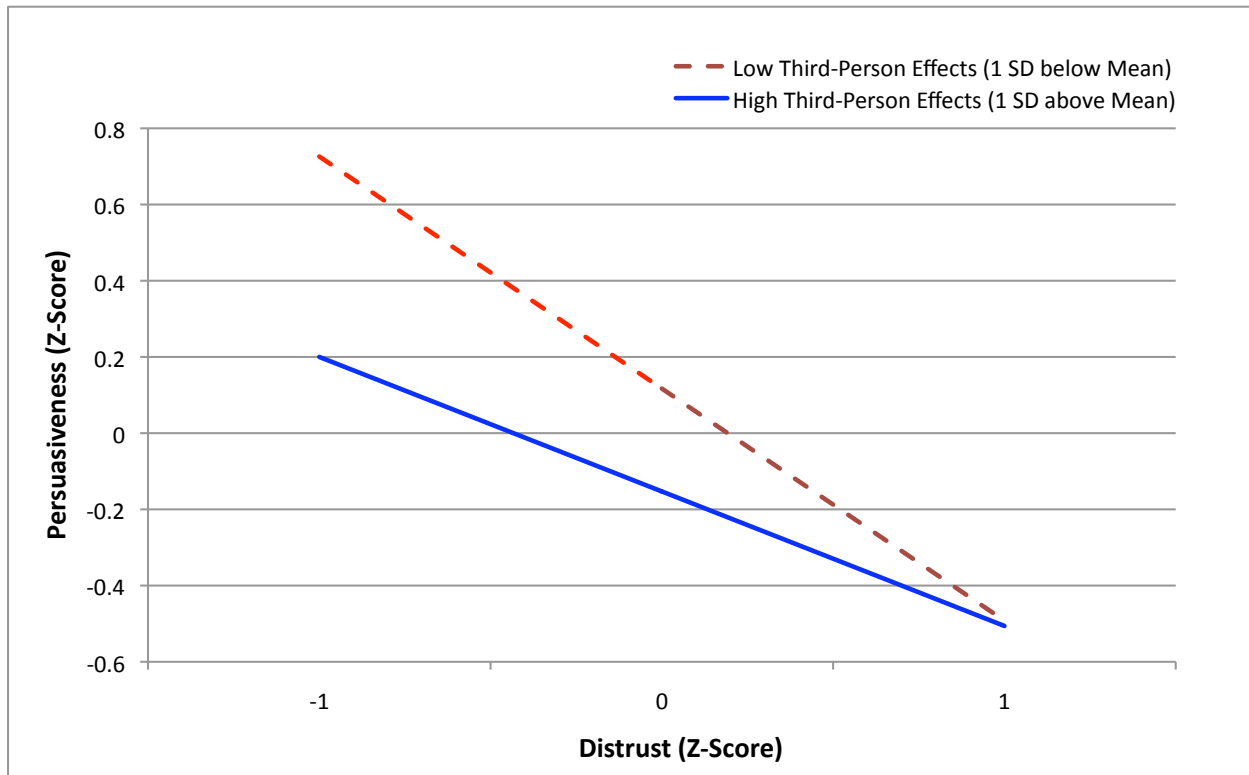


Figure 10. The relationship between distrust and persuasiveness was moderated by ad-specific third-person effects,  $N = 882$ .

### Moderated Mediation Analyses

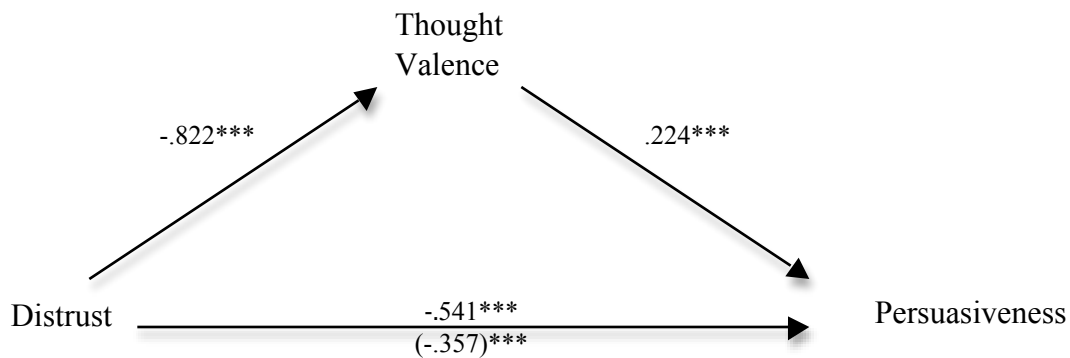
It was hypothesized that thought valence mediates the relationship between distrust and persuasiveness, and that the degree of mediation is stronger under high ability conditions (no distraction, informational ad).

**Hypothesis 11.** The mediation hypothesis was evaluated first using Preacher and Hayes' *INDIRECT* macro, with persuasiveness as the dependent variable, distrust as the independent variable, and order, participant sex, and age as covariates. As shown in Figure 11, the total effect, or relationship between distrust and persuasiveness (*path c*), was significant ( $B = -.541$ ,



$t = 16.99, p < .001$ ). The path from distrust to thought valence (*path a*) was likewise significant ( $B = -.822, t = 10.56, p < .001$ ), indicating greater distrust was associated with less favorable thoughts (i.e., greater counterarguing). Finally, more favorable thoughts were associated with greater persuasiveness (*path b*;  $B = .224, t = 19.38, p < .001$ ), or alternatively, counterarguing was predictive of reduced persuasiveness. All paths were in the hypothesized direction.

Accounting for the relationship between thought valence and persuasiveness reduced the path from distrust to persuasiveness from  $B = -.541$  (*path c*) to  $B = -.357$  (*path c'*). Although the direct path was still significant ( $t = 12.61, p < .001$ ), the results suggest the valence of thoughts does partially mediate the relationship between distrust and persuasiveness overall. The bias corrected 95% confidence interval around the indirect effect of distrust on persuasiveness, with 1000 bootstrap resamples, did not include zero (.1453 to .2252), indicating significant mediation by thought valence.



*Figure 11.* The relationship between distrust and persuasiveness was partially mediated by thought valence. The coefficient in parentheses is the direct path from distrust to persuasiveness,  $N = 882$ . The total effect (*path c*) is shown above the arrow, while the direct effect (*path c'*) is shown below the arrow in parentheses. ( $***p < .001$ )

**Hypothesis 12.** The moderated mediation hypothesis was evaluated using Preacher, Rucker, and Hayes' (2007) *MODMED* macro for SPSS. Persuasiveness was once again entered

as the dependent variable, with distrust as the independent variable and thought valence as the mediator, as shown in Figure 11. The hypothesized moderators (ad type and distraction) were evaluated in separate models, with order, participant sex, and age included as covariates. Ad replicate was included as an additional covariate for the model with ad type as the moderator.

For both models, the simple mediation findings described under Hypothesis 11 were reproduced. Ad type had a significant effect on both thought valence and persuasiveness, but moderated only the path from distrust to persuasiveness (*path c*),  $B = .161, t = 3.02, p = .003$ . Specifically, the total effect of distrust on persuasiveness was stronger for informational ads ( $B = -.659, t = 13.18, p < .001$ ) than for emotional ads ( $B = -.488, t = 12.36, p < .001$ ), though significant for both. Distraction had no significant effect on either thought valence or persuasiveness, and did not moderate any of the paths.

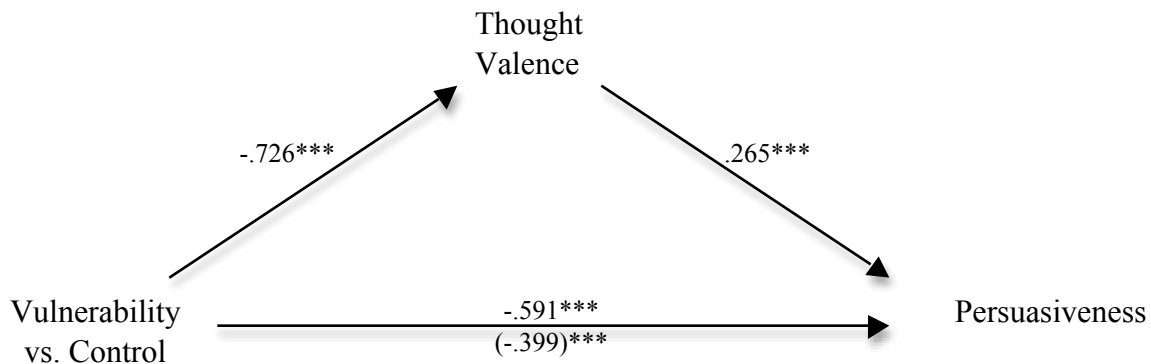
### **Additional Analyses**

In addition to the planned analyses, a series of exploratory analyses was conducted to further investigate the nature of the relationships between variables. These analyses focused on the vulnerability manipulation, which had an unanticipated boomerang effect on perceptions of vulnerability, and the distraction manipulation, the effects of which appeared to be weak at best.

#### **Vulnerability Manipulation**

The results suggest the vulnerability manipulation did not operate through the hypothesized mechanism of reducing third-person effects, but nonetheless reduced persuasiveness and associated variables. Through what mechanism, then, did the manipulation work? Perhaps the manipulation operated as a minimal media literacy intervention, enhancing counterarguing and thereby reducing persuasiveness. This *post hoc* mediation hypothesis was evaluating using Preacher and Hayes' (2008) *INDIRECT* macro. Participant age, sex, and order

were entered as covariates. As noted previously, the total effect of vulnerability on persuasiveness (*path c*) was statistically significant. Figure 12 shows that the path from vulnerability to thought valence (*path a*) was likewise significant ( $B = -.726, t = 3.67, p < .001$ ), indicating less favorable thoughts (or greater counterarguing) in the demonstrated vulnerability condition. Finally, *path b* was significant ( $B = .265, t = 22.61, p < .001$ ), with a more positive thought valence associated with greater persuasiveness. Accounting for the relationship between thought valence and persuasiveness reduced the effect of vulnerability on persuasiveness from  $B = -.591$  (*path c*) to  $B = -.399$  (*path c'*). Although the direct path remained significant ( $t = 5.76, p < .001$ ), the results suggest thought valence partially mediated the effect of the vulnerability manipulation on persuasiveness. The bias corrected 95% confidence interval around the indirect effect of vulnerability on persuasiveness, with 1000 bootstrap resamples, did not include zero (-.3070 to -.0861), indicating mediation by thought valence was significant.



*Figure 12.* The effect of the vulnerability manipulation on persuasiveness was partially mediated by thought valence. The coefficient in parentheses indicates the direct effect of the vulnerability manipulation on persuasiveness,  $N = 882$ . The total effect (*path c*) is shown above the arrow, while the direct effect (*path c'*) is shown below the arrow in parentheses. (\*\*\*)  $p < .001$

## **Distraction Manipulation**

Distraction was hypothesized to reduce counterarguing, or lead to less unfavorable thoughts, but the multivariate and univariate analyses suggest distraction had no effect. However, the stepdown analysis found that when adjusted for its effects on higher-priority dependent variables, distraction had a marginally significant ( $p < .01$ ) effect on thought valence, controlling for order, participant sex, and age. Participants in the distraction condition exhibited a more positive thought valence in response to the target ad ( $M = 2.01$ ,  $SD = 2.89$ ) than those in the no distraction condition ( $M = 1.60$ ,  $SD = 3.06$ ). Distraction had no significant effects on any of the other dependent variables.

Research suggests that the effects of distraction often interact with the strength (or persuasiveness) of the message (e.g., Petty & Brock, 1981). Perhaps in the present study the effect of distraction on thought valence was moderated by the perceived persuasiveness of the ad, such that the competing effects at different levels of persuasiveness cancelled each other out (leading to a nonexistent or weak main effect of distraction). This *post hoc* interaction hypothesis was first evaluated using hierarchical regression. No significant interaction was found between distraction and persuasiveness on thought valence. To further explore the effect of distraction, the data were split into three approximately equal groups along the perceived persuasiveness variable (group membership was determined by where participants fell relative to the 33rd and 67th percentiles). The bottom third ( $n = 293$ ) consisted of those who rated the target ad less than 4 on the persuasiveness scale. The middle third ( $n = 299$ ) included participants who rated the ad between 4 and 5 (inclusive). Finally, the top third ( $n = 290$ ) was composed of those who rated the ad higher than 5. The effect of distraction on thought valence was evaluated separately within each of these three groups, and was significant only in the low perceived persuasiveness group,

$t(291) = 2.67, p = .008$ . That is, for those who found the target ad relatively unpersuasive, distraction reduced counterarguing ( $M = -0.13, SD = 2.50$ ) relative to the no distraction condition ( $M = -0.92, SD = 2.62$ ). Among those in this low perceived persuasiveness group, participants were significantly more likely to have been assigned to one of the informational ads,  $\chi^2(2) = 11.86, p = .003$ . The effect of distraction on thought valence in each of the three persuasiveness groupings is shown in Figure 13.

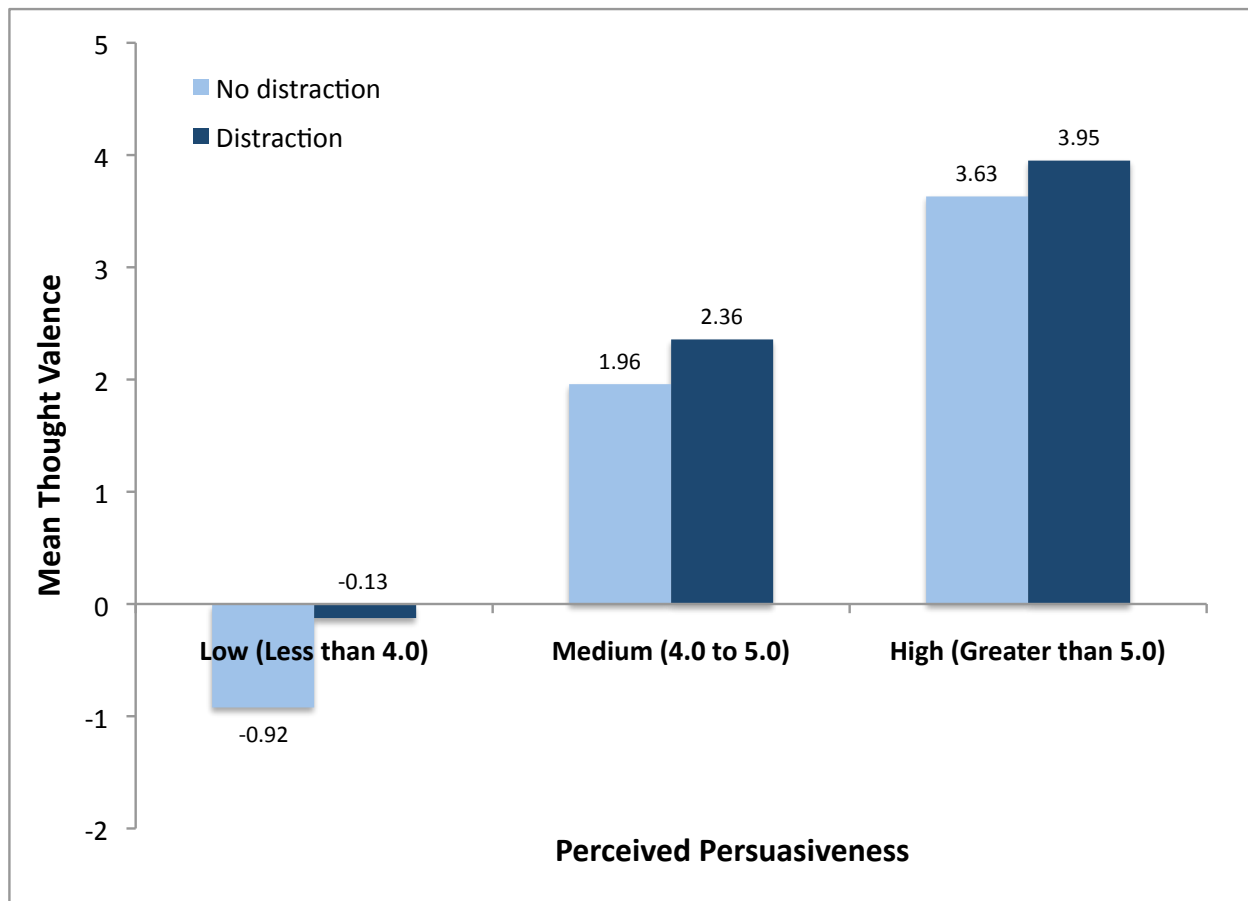


Figure 13. Distraction significantly reduced counterarguing when perceived persuasiveness was low (less than 4.0, or bottom third),  $N = 882$ .

## CHAPTER SIX: DISCUSSION

The present research set out to address four research questions in two broad domains: (1) the effects of variations in motivation and ability on a number of variables conceptualized as intermediate media literacy outcomes, and (2) mediators and moderators of the perceived persuasiveness of advertising. The vulnerability manipulation, designed to motivate message elaboration by heightening perceptions of vulnerability, was effective at reducing the perceived persuasiveness of the target ads, but not through the hypothesized mechanism. The results of a *post hoc* mediation analysis suggest the manipulation may instead have worked as a minimal media literacy intervention, reducing persuasiveness by promoting counterarguing. The hypotheses regarding informational versus emotional ads were largely supported; individuals were more persuaded by emotional ads, despite skepticism regarding their motives. The effect of distraction was limited to reducing counterarguing among those who found the ad relatively unpersuasive (i.e., those most inclined to counterargue). These findings are discussed in turn.

### Effects of Motivation and Ability

#### Research Question 1a

The first research question asked how, if at all, barriers related to motivation (i.e., perceived invulnerability) and ability (i.e., type of ad, distractions) affect media literacy related outcomes.

**Hypothesis 1: Vulnerability.** The first set of hypotheses, pertaining to the effects of the vulnerability manipulation, was partially supported. As anticipated, participants whose personal vulnerability was demonstrated found the video ad less realistic, less similar to their personal experience, less attractive, and less persuasive. They also identified less with the portrayal,

distrusted it more, and generated more counterarguments than those in the control condition. The vulnerability manipulation explained 13.1% of the variation in the ten dependent variables, which was largely attributable to its effects on distrust and persuasiveness.

The vulnerability manipulation also was hypothesized to reduce third-person effects (i.e., increase perceptions of one's own vulnerability to both the target ad and media messages in general) and increase perceptions of persuasibility. These hypotheses were not supported. Demonstration of vulnerability did not affect participants' perceptions of their general persuasibility or their susceptibility to media messages in relation to others. Whereas the vulnerability manipulation was expected to increase participants' perceived vulnerability to the video ad (thereby reducing third-person effects), it actually worked in the opposite direction. That is, participants whose vulnerability was demonstrated rated themselves *less* affected by the video ad than those in the control condition. Although third-person effects were evident in both the vulnerability and control conditions, the magnitude of third-person effects was increased, rather than decreased, by the vulnerability manipulation.

The mixed results for Hypothesis 1 suggest that perceptions of vulnerability were not responsible for the effect of the vulnerability manipulation on intermediate media literacy outcomes such as distrust and persuasiveness (discussed more fully under Hypotheses 7 and 8). Despite the counterintuitive effect of the manipulation on perceived vulnerability, it successfully increased both logical and emotional processing of the target ads.

**Hypothesis 2: Ad type.** The second set of hypotheses, relating to the differences between informational and emotional ads, was largely supported. Despite differences among the exemplars of each ad type (primarily the informational ads), the emotional ads were viewed as more similar to personal experience, more attractive, and more persuasive than the informational

ads, and participants reported greater identification with the emotional ads. Counter to the hypothesis, participants distrusted the emotional ads more than the informational ads. Controlling for the differences between ads of each type, the informational-emotional distinction explained 13.5% of the variation in the ten dependent variables, which was largely attributable to its effects on distrust, identification, and persuasiveness.

**Hypothesis 3: Distraction.** The third set of hypotheses, relating to the effects of distraction, received marginal support. Distraction was hypothesized to enhance persuasiveness, perceived realism, similarity, attractiveness, and identification, and reduce distrust and counterarguing. Because distraction had no multivariate effect, its effect on the individual dependent variables was not examined. That said, in the stepdown analysis, controlling for its effects on the higher priority dependent variables (persuasiveness, distrust, identification, attractiveness, realism, and similarity), distraction had a marginally significant ( $p < .01$ ) effect on counterarguing, such that it was reduced in the distraction condition.

The effects of distraction can be complex. Research suggests that when a message is strong, distraction tends to interfere with persuasion (i.e., by reducing favorable thoughts), but when a message is weak, distraction can enhance persuasion (i.e., by reducing counterarguing; e.g., Petty & Brock, 1981). Whereas research on distraction usually manipulates message strength, an attempt was made to control message strength in the present research by selecting ads with equivalent strength. However, the results suggest some ads were stronger and more persuasive than others. To examine the possibility that the effects of distraction differed depending on the perceived persuasiveness of the ad, a series of follow-up analyses was conducted. The results of these analyses suggest distraction did not interact with persuasiveness in a linear fashion, but when the persuasiveness variable was divided into three groups of



roughly equal size, an interesting pattern emerged. Among the two-thirds of respondents who found the target ad moderately or highly persuasive (mean ratings of 4 or higher), distraction had no significant effect on the valence of thoughts. However, among those who found the ad relatively unpersuasive (mean ratings less than 4), distraction significantly reduced counterarguing.

### **Research Question 1b**

Research question 1b asked how, if at all, barriers to motivation and processing ability interact in their effects on the dependent variables.

**Hypotheses 4 through 6: Interactions.** Distraction was hypothesized to have a greater effect on relevant dependent variables for the informational ad. Additionally, the effect of the vulnerability manipulation was expected to be most pronounced when ability was not compromised (informational ad, no distraction). None of the two-way interactions was significant in the multivariate analysis. As such, their effects on the individual dependent variables were not evaluated.

### **Mediators and Moderators of Persuasiveness**

#### **Research Question 2a**

Research question 2a addressed potential mediators and moderators of the relationships between manipulated vulnerability, distrust, and persuasiveness.

**Hypotheses 7 and 8: Mediation.** Perceptions of persuasibility and third-person effects (general and ad-specific) were hypothesized to mediate the effect of the vulnerability manipulation on persuasiveness. Although participants in the demonstrated vulnerability condition rated the ad more persuasive, this effect remained after accounting for the potential mediators. That is, the effect of the vulnerability manipulation on persuasiveness was not fully

mediated by perceptions of persuasibility, perceptions of personal vulnerability to media messages in general, or perceptions of vulnerability to the target ad specifically.

General third-person effects were not influenced by the vulnerability manipulation, but had a counterintuitive negative relationship with persuasiveness, indicating that greater relative perceived vulnerability to media messages was associated with greater persuasiveness. Ad-specific third-person effects were influenced by the vulnerability manipulation, but not in the expected direction. Individuals whose vulnerability was demonstrated rated themselves less affected by the target ad than those in the control condition. Like general third-person effects, ad-specific third-person effects had a negative relationship with persuasiveness, such that greater perceived vulnerability to the target ad was associated with greater persuasiveness. Because both indirect paths (*paths a* and *b*) were significant and the direct effect of the vulnerability manipulation on persuasiveness (*path c'*) was closer to zero than the total effect (*path c*), ad-specific third-person effects partially mediated the effect of vulnerability on persuasiveness. However, *paths a* and *b* were opposite to the directions hypothesized. These findings suggest that perceptions of vulnerability to the target ad worked against effect of the vulnerability manipulation, but the effect nonetheless remained strongly negative. In other words, the vulnerability manipulation had the expected negative effect on persuasiveness *in spite of* its effect on perceived vulnerability, not because of it.

A follow-up analysis was conducted to explore why the vulnerability manipulation achieved the desired effect (reduced persuasiveness) if it did not work through the hypothesized mechanism. The results of this *post hoc* analysis suggest the valence of generated thoughts partially mediated the effect of the vulnerability manipulation on persuasiveness. That is, the

vulnerability condition elicited less favorable thoughts in response to the target ad, which was in turn associated with reduced persuasiveness.

**Hypotheses 9 and 10: Moderation.** Perceptions of persuasibility and third-person effects (general and ad-specific) were hypothesized to moderate the relationship between distrust and persuasiveness. These hypotheses were partially supported. As anticipated, distrust was negatively associated with persuasiveness. The strength of this relationship was not influenced by perceived persuasibility or general third-person effects, but ad-specific third-person effects did attenuate the relationship. As hypothesized, the negative relationship between distrust and persuasiveness was strongest when third-person effects were low or negative. In other words, distrust, or the perception of manipulative intent, was more strongly related to resistance among those who perceived themselves to be vulnerable to the target ad.

**Hypothesis 11: Mediation.** Thought valence was hypothesized to partially mediate the relationship between perceptions of manipulative intent (i.e., distrust) and persuasiveness. This hypothesis was supported. Distrust was associated with less favorable thoughts, which was in turn associated with reduced persuasiveness. All paths in the mediation model were statistically significant. The direct path from distrust to persuasiveness remained significant after accounting for the indirect path through thought valence, but was substantially reduced, indicating partial mediation.

### **Research Question 2b**

Research question 2b addressed the extent to which the mediated relationship described under Hypothesis 11 is affected by variations in ability.

**Hypothesis 12: Moderated mediation.** Thought valence was hypothesized to mediate the relationship between distrust and persuasiveness more strongly for informational ads, and

under non-distracted conditions. This moderated mediation hypothesis was not supported. The degree of mediation was not influenced by either ad type or distraction condition.

### **General Discussion**

The results of the present research were in many ways consistent with existing theory and research, particularly with regard to emotional forms of advertising, and in other ways, inconsistent (e.g., the counterintuitive effects of the vulnerability manipulation and absence of interactions between motivational and ability-related barriers). Nonetheless, the divergent findings shed light on the conditions under which media literacy interventions (even extremely minimal interventions) are likely to be effective. Finally, the results highlight the central roles of trust (or distrust) and counterarguing in decision-making processes in relation to media messages.

### **Emotional Advertising**

Whereas informational ads operate through explicit processes, emotional ads work primarily by establishing positive brand inferences, the effects of which are largely automatic and unconscious. Research on emotional forms of advertising (e.g., Harris, Brownell, & Bargh, 2009; Morris, Woo, Geason, & Kim, 2002) suggests such approaches are more effective because they are able to bypass or subvert logical decision making processes. The results of the current research support this contention. Despite variability within each type of ad, the differences between informational and emotional forms of advertising were profound. Consistent with expectations, the emotional ads were evaluated to be more persuasive, attractive, and similar to personal experience than informational ads, and also elicited greater identification.

Although emotional ads were associated with greater persuasiveness (and related variables), they were found to be less trustworthy than informational ads. This unexpected

finding suggests that individuals are able to recognize appeals to emotion as a potentially manipulative or unfair tactic and intuitively distrust them, but nonetheless find themselves persuaded by ads that utilize these techniques. This finding also lends support to Austin and colleagues' (2007) distinction between trust and perceived realism as (respectively) affective and cognitive dimensions of skepticism. The fact that perceived realism aligned with perceived persuasiveness and trust worked in the opposite direction supports the discriminant validity of the two constructs. Moreover, these findings support the contention that emotional ads work by bypassing logical processes. The MIP model proposes that media messages are subjected to increasingly rigorous levels of scrutiny, and can be rejected at any stage in the process. The informational ads were deemed less similar to personal experience, less attractive, and elicited less identification than the emotional ads. Although the emotional ads were more likely to fail the trustworthiness test, they by-and-large circumvented the other more logical tests, and as a result, were more persuasive.

### **Manipulation of Vulnerability**

Little research has attempted to manipulate perceptions of vulnerability to media messages, but Sagarin and colleagues' (2002) demonstration of vulnerability successfully promoted both resistance to illegitimate messages (those using inappropriate authorities) and receptivity to legitimate messages. The present research focused only on promoting resistance to ads, as measured by perceptions of persuasiveness, counterarguing, and other intermediate media literacy outcomes. The ability to distinguish legitimate from illegitimate messages was not part of the current study.

Consistent with the results of Sagarin and colleagues, the vulnerability manipulation heightened resistance to the ads; specifically, it reduced perceptions of persuasiveness, realism, similarity, attractiveness, and identification, and increased distrust and counterarguing. The effect of the vulnerability manipulation on the dependent variables was substantial, and based on the results of the stepdown analysis, it appeared to be concentrated primarily on distrust and perceptions of persuasiveness. These findings suggest demonstration of personal vulnerability can be a highly effective means of promoting intermediate media literacy outcomes such as distrust and reduced persuasiveness, at least in the short term. Furthermore, the current research extended the work of Sagarin and colleagues by suggesting the target ads need not relate closely to the content of the vulnerability manipulation in order for the manipulation to be effective. Sagarin and colleagues' target ads all pertained to the same persuasive technique on which the vulnerability manipulation focused (use of authorities); the goal of their intervention was fostering skepticism regarding this specific persuasive technique. In the present study, however, the target ads intentionally did not include the same persuasive techniques on which participants had previously been briefed (i.e., appeals to freshness and scarcity). The vulnerability manipulation in the current study heightened skepticism (i.e., distrust), and this skepticism generalized beyond the persuasive tactics emphasized in the manipulation to entirely unrelated persuasive tactics.

Although the vulnerability manipulation ultimately achieved its intended effects on media literacy outcomes such as distrust and reduced persuasiveness, it did not work through the hypothesized mechanism of reduced third-person effects (i.e., heightened perceptions of personal vulnerability). Counter to expectations, the manipulation *increased* third-person effects in

relation to the target ads. That is, participants who received the vulnerability manipulation rated themselves less affected by the ads, relative to others. The fact that the manipulation failed to reduce third-person effects does not necessarily mean third-person effects are irrelevant in the context of media literacy. It may be that the concept of a manipulation to challenge perceptions of personal invulnerability is valid, but that the manipulation was poorly executed in the present study.

There are a number of possible explanations for why the vulnerability manipulation backfired. The manipulation itself may have been insufficient to challenge strongly held beliefs about personal vulnerability to advertising. Based on the procedures of Sagarin and colleagues, the manipulation consisted primarily of showing participants their previously committed response regarding how convincing they found the print ad, and describing two persuasive tactics which they may or may not have noticed. Participants were admonished that if they found the ad at least somewhat convincing, “you let the advertiser manipulate you with some very common persuasive tactics,” warned about the potential of “manipulation by crafty advertisers,” and urged: “don’t let yourself be fooled!” The manipulation consisted of a full page of text which required participants to scroll through; some participants may have skimmed this text or avoided it entirely, and as a result did not truly receive the manipulation. Although the print ad was pilot tested to confirm it would be sufficiently convincing, the text of the vulnerability manipulation was not.

Alternatively, while the manipulation itself may have been insufficient to overcome illusions of invulnerability, it is possible that the language of the manipulation was too strong in relation to the rather innocuous print ad. Several respondents noted in the comments field that

they did not find the ad's persuasive tactics (appeals to freshness and scarcity) particularly manipulative or offensive, and that they would be inclined to try the product despite knowledge of the persuasive techniques. Some even indicated that they were more suspicious of the researcher's motives in trying to convince them of their vulnerability than the advertiser's. These comments suggest the manipulation may have induced reactance among some participants, but against the researcher and the experiment rather than the advertiser. Participants who believed the researcher was trying to control them may have rejected the message of the manipulation (rather than the ad), resulting in low ratings of personal vulnerability, relative to others. Alternatively, but in a similar vein, the text of the manipulation may have primed self-enhancement motives by making personal vulnerability salient. In this biased state, participants may have been less able to accurately report on their personal vulnerability.

In addition to the counterintuitive effect of the vulnerability manipulation on perceived vulnerability, the direction of the relationship between perceptions of vulnerability and persuasiveness was counter to expectations. Third-person effects were hypothesized to be positively associated with persuasiveness such that individuals who acknowledge their personal vulnerability are more motivated to resist subsequent persuasion attempts and ultimately find the ads less persuasive. Instead, general third-person effects (i.e., in relation to media messages in general) were negatively associated with persuasiveness. The more vulnerable individuals perceived themselves to be, the more persuasive they found the ads. This finding suggests that although (some) individuals may recognize their personal vulnerability to persuasive media messages, this recognition does not motivate resistance to such messages. Alternatively, this finding may simply reflect participants anchoring their responses regarding personal



vulnerability to their earlier ratings of the target ad's persuasiveness. The latter explanation seems unlikely, however, as the two sets of ratings were quite far apart in the survey instrument. Moreover, if this were the case, one would expect a stronger correlation between ratings of ad-specific third-person effects and persuasiveness, given that these scales targeted the same stimulus (the target ad). The relationship between persuasiveness and ad-specific third-person effects was in fact weaker than the relationship between persuasiveness and general third-person effects.

The vulnerability manipulation was not intended to work as a direct media literacy intervention, but rather, to motivate more thorough processing through the mediating mechanism of heightened perceptions of vulnerability. Regardless of the reasons the vulnerability manipulation backfired, it ultimately did promote resistance to the ads. The results of a follow-up analysis suggest the effect of the manipulation (on persuasiveness, at least) was partially mediated by increased counterarguing. Thus, it appears the manipulation did operate as an extremely minimal media literacy intervention, though it is questionable whether these results would be maintained in the long term. In any case, this finding suggests individuals need not view themselves as vulnerable for even very brief media literacy interventions to be effective.

The vulnerability manipulation increased distrust in the ads and reduced perceived persuasiveness, and its effect on persuasiveness was partially mediated by the valence of thoughts generated in response to the ads. These findings suggest the manipulation operated through both emotional (i.e., distrust in the ad) and logical (i.e., increased counterarguing) routes of decision-making. That said, the fact that mediation by thought valence was only partial implies additional mediating mechanisms remain unexplained.

## **Distraction**

Research on distraction (e.g., Petty & Brock, 1981; Petty, Wells, & Brock, 1976) suggests it typically interferes with whatever the dominant response to a message would have been under ideal (i.e., non-distracted) conditions. That is, if the message is weak, distraction disrupts counterarguing and ultimately promotes persuasion. Alternatively, if the message is strong and the dominant response is favorable thoughts, distraction tends to reduce these favorable thoughts, leading to reduced persuasion.

In the present research, an attempt was made to control message strength (or persuasiveness) by selecting ads of approximately equivalent strength, but the results suggest there was substantial variation both within and between ad types. The main effect of distraction was weak at best, as would be expected given that its effects tend to be conditional upon message strength. Consistent with expectations, distraction reduced counterarguing among those who found the ad unpersuasive (i.e., weak). In other words, among those for whom counterarguing was the dominant response, distraction reduced the magnitude of this response. There was no evidence that distraction reduced any tendency toward favorable thoughts among those who found the ad persuasive (i.e., strong), but research findings have been less consistent with regard to the effects of distraction on strong messages. Furthermore, the majority of participants in the “low persuasiveness” group viewed informational ads. These findings suggest the effects of distraction on counterarguing may be limited to those who have the ability (informational ad) and inclination (unpersuaded by ad) to counterargue in the first place.

## **Role of Trust**

Consistent with the results of Sagarin and colleagues, thought valence (i.e., cognitive responses to the ads) mediated the negative relationship between distrust and persuasiveness. In other words, distrust in the ad was associated with less favorable thoughts (i.e., greater counterarguing), which were in turn associated with reduced persuasiveness. It was predicted that mediation by thought valence would be only partial overall because the degree of mediation would be moderated by factors related to the ability to generate counterarguments (i.e., distraction and type of ad). Specifically, distrust was expected to be more strongly associated with counterarguing when the ability to counterargue was already high. Although there was no evidence of moderated mediation, the mediation was not complete; distrust also had a direct relationship with persuasiveness, suggesting additional mediators remain unaccounted for.

In addition to partial mediation by counterarguing, the relationship between distrust and persuasiveness was expected to be moderated by perceptions of personal vulnerability such that it would be stronger when perceived vulnerability was high. Research suggests distrust in media messages can be a powerful motivator (e.g., Campbell, 1995), but one would expect this to be true primarily to the extent that individuals perceive themselves to be vulnerable. That is, the perception that an ad is manipulative should have less influence on processing for those individuals who believe they are invulnerable to such manipulation. The results were consistent with this prediction, at least with regard to perceptions of vulnerability to the specific target ad. Those who perceived themselves to be more affected by the target ad had a stronger association between distrust and persuasiveness than those who believed others were more affected than themselves. However, moderation by ad-specific third-person effects was only partial; distrust

was negatively associated with persuasiveness even among those who believed themselves invulnerable. In other words, distrust of advertising messages appears to be an important resistance-related variable, particularly (but by no means exclusively) among those who acknowledge their personal vulnerability to such messages.

## **Implications**

**Scholarly implications.** The present research contributes to the literatures in both media literacy and applied social psychology by combining the leading model of the processes underlying media literacy with a theoretically grounded explication of how barriers to motivation and ability would be expected to impact these processes. Whereas the media literacy literature might be characterized as too applied, with inadequate theory driving it, the social psychological literature is, conversely, not applied enough with regard to media literacy. Despite social psychology's cognitive bent, the preponderance of research into persuasion, and growing interest in resistance (e.g., Knowles & Linn, 2004b), the field has not, thus far, explicitly addressed media literacy as a phenomenon whose underlying psychological mechanisms warrant closer examination. Certainly, more research is certainly needed regarding the effectiveness of media literacy interventions. It is imprudent, however, to attempt to solve a problem without first understanding the nature of the phenomenon, including its underlying mechanisms and the conditions affecting its manifestation. As Kurt Lewin, the forefather of contemporary social psychology and advocate of cooperation between researchers and practitioners, wrote: "there is nothing so practical as a good theory" (1951, p. 169).

The results of the present research were largely consistent with prevailing theory and research, particularly with regard to the effects of emotional forms of advertising and distraction.

Emotional advertising, which operates through positive brand associations rather than rational analysis of the product's costs and benefits, poses a substantial barrier to logical decision-making processes. Although emotional forms of advertising are viewed as less trustworthy than informational advertising, they are more likely to circumvent logical processes, and as a result, more persuasive. Emotional ads may promote a literal suspension of disbelief, as viewers are drawn into the mini-narrative of the ad (e.g., Slater, 2002). Individuals distrust emotional ads on some level, but this distrust appears to be quickly forgotten, and does not spread to other, more logical, reactions to these ads. Whereas emotional forms of advertising interfere with processing ability across the board, the effects of distraction appear to be concentrated on those who might otherwise reject the ad (i.e., those who find the ad unpersuasive and are inclined toward counterarguing).

In addition to supporting existing research on emotional advertising and distraction, the current research highlights the critical roles played by trust (or distrust) and counterarguing in decision-making processes in the context of media messages. The effect of the vulnerability manipulation on media literacy outcomes was largely attributable to its influence on distrust; individuals who received the vulnerability manipulation found the ads less trustworthy. As proposed by Austin and colleagues (2007), trust appears to be a distinct construct from perceived realism. The results suggest skepticism is a complex concept, with both cognitive and affective components; it is possible to distrust an ad, but nonetheless find it realistic (and ultimately persuasive). Trustworthiness is a key predictor of the persuasiveness of advertising messages, though this relationship appears to depend on the extent to which individuals believe themselves vulnerable to such messages. Among those who see themselves as invulnerable, the strength of

the relationship between distrust and persuasiveness is attenuated. In conjunction with distrust, the results suggest counterarguing plays a key role in media literacy processes. Distraction reduced the tendency toward counterarguing among those who found the ads unpersuasive. Moreover, increased counterarguing was partially responsible for the effect of the vulnerability manipulation, as well as the relationship between distrust and persuasiveness.

In sum, the results suggest invoking concepts of personal vulnerability to advertising makes individuals both less trusting in ads, and more likely to counterargue these ads. The tendency toward counterarguing is reduced, however, by distraction, at least among those with the ability and inclination to counterargue in the first place. The less an individual trusts an ad, and the more they engage in counterarguing, the less likely they are to be persuaded by the ad. That said, distrust is most relevant for those who acknowledge their personal vulnerability.

**Methodological implications.** In addition to advancing the theoretical literature on media literacy, the present research suggests new methods of study. Traditionally, media literacy research involves a standardized intervention, which is implemented in classrooms (or other settings) with varying degrees of fidelity. Researchers then evaluate the effects of this intervention on knowledge, attitudes, and in rare cases, behavior, relative to either a comparison group (usually without random assignment) or the experimental group's pre-intervention measures. The current research utilized a different approach entirely, examining responses to advertising messages under different conditions among participants assumed to have varying levels of latent media literacy. This approach is more consistent with a view of media literacy as a context dependent state, rather than a stable trait.

On a broad level, adopting an interactionist approach that considers characteristics of the mediated environment, individual factors, and the interplay between the two has the potential to greatly enhance media literacy research. In studying the effectiveness of media literacy interventions, researchers could investigate potential interactions between source, message, target, and contextual variables, as is characteristic of persuasion research. Examination of these contingencies could improve current understanding of the conditions under which media literacy interventions are most effective, and how such interventions might be tailored to different individuals, types of messages, and persuasive contexts.

**Implications for media literacy practice.** Beyond research methodology, the present research has the potential to inform the practice of media literacy and influence administrative decision-making in years to come. The results of this research challenge the validity of customary assumptions of media literacy education by suggesting that the emphasis on thorough processing is misplaced. Approaches focused solely on promoting critical processing are unlikely to be effective under conditions in which the ability to engage in such processing is compromised. This is particularly true with regard to emotional forms of advertising and distracted media-use conditions.

New approaches are needed, specifically tailored to emotion-based decision-making under these more realistic media-use conditions. In particular, the results of this research suggest activating distrust in advertising should be a central component of media literacy interventions. That said, activating distrust may not be sufficient to challenge emotional forms of advertising; media literacy educators must also find a way to activate the cognitive dimensions of skepticism (i.e., perceived realism, similarity). For example, students should be encouraged to reflect on

*why* they distrust the ad and to give this distrust more weight in their decision-making processes. Distrust appears to promote counterarguing, but it is important to give students the necessary tools to distinguish trustworthy and untrustworthy media messages, rather than simply branding all media messages (or all emotional advertising) as untrustworthy. Both educators and students need to be educated about the complex and sometimes counterintuitive effects of distraction. That is, media messages can influence people's attitudes and behavior even without their conscious awareness, and these effects are often most pronounced when they are otherwise occupied. The consequences of distraction may be particularly relevant for young people, who are highly likely to engage in some form of media multitasking on a regular basis (e.g., using other media while watching television). According to a report by the Kaiser Family Foundation (Roberts, Foehr, & Rideout, 2005), youth between ages 8 and 18 engage in 8.5 hours of media-use in only about 6.5 hours of actual time, on average. Although the vulnerability manipulation appeared to be effective in the short term, it is not recommended that educators adopt this approach without further research. The manipulation appeared to put individuals in a defensive posture, such that they rejected not only the ad, but also the researcher. The use of such techniques in a classroom setting could potentially induce reactance against the educator.

The current research did not evaluate a media literacy intervention in the traditional sense, but it offers a first step in examining how media literacy processes are influenced by barriers to motivation and processing ability. The results of this research add to the media literacy knowledge base, providing raw material for the teachers and curriculum developers of tomorrow.



## Limitations

Although the present research has substantial implications for media literacy theory, research, and practice, a number of limitations warrant attention.

**Design and internal validity.** Although participants were randomly assigned to conditions, some cells were much larger than others. In particular, in the vulnerability, emotional ad (Abbott's Village Bakery), no distraction condition, more than twice as many participants were assigned to evaluate the effects of media messages on others first than themselves first (see Table 10). The reason for this irregularity is unclear. The MANCOVA (and follow-up univariate ANCOVAs) produced some evidence of possible order effects on dependent variables (persuasiveness and thought valence) that were measured *before* the order manipulation took place, though these effects were significant only at  $p < .05$ . This anomalous finding suggests there may have been some preexisting differences between groups on the order variable, despite random assignment. However, these differences were controlled by including order as a covariate in all analyses.

An attempt was made to minimize confounds related to ad type by selecting ads of roughly equivalent strength and persuasiveness, but there was still substantial variation among the ads, both within and between types. Differences between the replicates of each ad type were controlled through the nested design. However, because only two exemplars of each type were utilized and random effects were not modeled, it is not possible to generalize the results to all possible informational and emotional ads. In other words, incidental differences between the specific emotional and informational ads that were used in this study could have been

responsible for the observed effects of ad type. That said, the results for ad type were robust and consistent with expectations, suggesting any confounding was minimal.

Some analyses involved experimentally manipulated variables, enabling causal inferences to be made, but others (specifically the mediation and moderation analyses) were correlational in nature. As a result, it is not possible to conclude unequivocally that distrust is an antecedent to reduced persuasiveness, mediated by counterarguing. The process could potentially have worked in the reverse direction, or both distrust and persuasiveness could have been influenced by an unmeasured third variable. The fact that all evidence of mediation and moderation was only partial hints at the presence of additional variables. Finally, because all follow-up analyses (including mediation of the effects of the vulnerability manipulation by counterarguing and the nonlinear interaction between persuasiveness and distraction) were *post hoc*, they were purely exploratory in nature. Any conclusions drawn from these analyses are tentative and would require replication with a new sample.

**External validity.** Some of the constructs in the present research may have been inadequately operationalized. In particular, the vulnerability manipulation did not work as intended; that is, by increasing perceived vulnerability. Rather, the manipulation had no effect on perceived vulnerability to media messages in general and *reduced* the perceived influence of the target ad on participants themselves, relative to others. While explanations for why the manipulation backfired remain speculative, one thing is clear—it was not effective at overcoming the motivational barrier posed by illusions of unique invulnerability. In addition to inadequate manipulation of vulnerability, the effects of distraction were weak at best, and limited to a relatively small subset of individuals. The effect of distraction on thought valence only

became evident in the stepdown analysis after partialing out its effects on six other dependent variables. The results of Pilot Study 2 were also somewhat inconclusive with regard to the distraction manipulation. Although distractions impaired recall and increased self-reported distractedness, they had no effect on a more objective measure of distractedness (number of thoughts). This finding was reproduced in the main study manipulation checks. The distraction manipulation may not have been sufficiently distracting.

Beyond the operationalization of constructs, the generalizability of the findings may be compromised by the web-based nature of the survey and the self-selected sample. Web-based samples are typically younger, more educated, and higher in socioeconomic status than other types of surveys (e.g., Gosling et al., 2004). Consistent with other MTurk research (e.g., Paolacci et al., 2010), the sample in the present study consisted of relatively (but not exclusively) young, predominantly white, middle-class, educated adults. As a result, the mechanisms uncovered by the present research may not apply to children or adolescents, minority populations, less educated or lower socioeconomic status individuals, or those with limited (or no) Internet access. In addition to the selection bias imposed by the nature of the survey, there were some demographic differences between the final sample and those participants whose data were excluded for various reasons. The final sample was slightly more female and less well-educated than those who were excluded, owing largely to differences in the likelihood of failing one or more of the instructional manipulation checks.

In addition to limitations in the generalizability of findings to other populations, the limited ecological validity of the experimental setting may compromise the applicability of the results to more naturalistic media-use settings. For example, individuals may respond differently

to being instructed to pay close attention to YouTube.com videos than they would passive exposure to TV commercials. The distraction manipulation was intended to simulate the effects of multitasking (e.g., being online or texting) during exposure to TV advertising, but the task of counting squares is highly artificial.

**Measurement.** There was a great deal of overlap among the dependent measures, particularly those adapted from existing MIP measures (e.g., Austin et al., 2002; 2006) and perceived persuasiveness. The results of the factor analysis were not entirely consistent with the theoretical constructs. That said, the reliabilities of the theoretical scales were quite high, and the results were by-and-large consistent with hypotheses.

The thought valence index could be called into question as a measure of counterarguing, as it may tap into other, unrelated constructs (e.g., a tendency toward listing more thoughts, or verbosity). Typically, cognitive response measures (such as the thought valence measure) are calculated by subtracting unfavorable from favorable thoughts and dividing this value by the sum of favorable and unfavorable thoughts. In the present research, however, this variable was conceptualized as a measure of both valence and magnitude. Adjusting for the total number of thoughts generated would have eliminated any indication magnitude from the measure. As such, thought valence remained uncorrected for verbosity. Moreover, the results on the thought valence measure have been interpreted in terms of counterarguing, but a less positive thought valence is not necessarily indicative of greater counterarguing; such a result could simply mean fewer favorable thoughts were generated.

With the exception of thought valence, all measures in the current research relied on self-report. Social desirability concerns may have influenced responses, particularly on the questions

addressing perceptions of the ad (e.g., persuasiveness, attractiveness, identification). Participants might have inferred that the researcher had a vested interest in the success of the advertised products. In an effort to avoid social desirability effects, participants were told at multiple points during the survey that it was part of an academic research study (i.e., not a marketing survey) and that the researcher had no affiliation with the advertised products or brands. Nonetheless, some participants may have missed (or not believed) these reminders, as evidenced by various comments encouraging the researcher to bring the advertised product to the U.S. Similarly, self-enhancement concerns may have motivated less than accurate responses on the items addressing third-person effects. Related to the limitations of self-report measures, the current research did not assess any behavioral or long-term outcomes in relation to the ads. The ultimate dependent variable of interest was perceived persuasiveness, which was used as a proxy for persuasion-related attitudinal and behavioral outcomes.

**Analysis.** Although inflated Type I error was controlled by imposing a more conservative threshold of statistical significance ( $p < .005$ ), the current research nonetheless involved quite a few analyses. The statistically significant results could have capitalized on chance to some extent, particularly the follow-up analyses which had no *a priori* hypotheses.

### **Future Directions for Media Literacy Research**

Despite its limitations, the present research suggests a variety of new directions for media literacy research in the twenty-first century. These include greater attention to the role of motivation, approaches targeting other media (e.g., digital media, contemporary stealth forms of advertising, entertainment narratives), and the relationship between media literacy and resistance.

**Role of motivation.** The illusion of invulnerability is just one type of motivational barrier that could potentially interfere with media literacy objectives. The uses and gratifications approach (e.g., Katz, Blumler, & Gurevich, 1974; Rubin, 1994) suggests individuals actively seek out specific forms of media to meet specific needs. Thus, some needs (e.g., diversion) might counteract media literacy motives, whereas others (e.g., acquiring information) might act in a facilitative manner. Third-person effects can interface with beliefs about media uses. For example, the third-person effect sometimes involves a belief that one primarily engages in “desirable” media uses (e.g., information-seeking), whereas others are more likely to use media for “undesirable” purposes (e.g., escape, habit).

Like language literacy, media literacy is often viewed as a stable trait, something an individual will always possess once certain concepts and skills have been acquired. Certainly some media literacy knowledge (e.g., production techniques) and skills (e.g., deconstruction) can be taught. However, media literacy may be better conceptualized as a fluid motivational state, subject to constraints imposed by situational factors (e.g., environmental distractions), chronic personality traits (e.g., need for structure, need for cognition), as well more variable individual characteristics (e.g., mood, other salient goals). Knowledge and skills provide the raw materials, but motivation provides the fuel. Contextual variables (e.g., distractions, the nature of the message itself, salient goals) may affect an individual’s ability or motivation to activate latent media literacy skills at any given time. Someday, instead of saying someone *is* media literate, one might observe that the individual is currently interacting with media in a media literate *manner*.

**Stealth advertising and new media.** Despite technological innovation, the vast majority of media literacy research has focused on the medium of television; little research has addressed media literacy in the context of new (i.e., digital) media and contemporary forms of advertising. In recent years, technologies such as digital video recording (DVR) and web-based television (e.g., Hulu.com) have given users unprecedented control over media content, and rendered the traditional television commercial all but obsolete. As such, advertisers have begun shifting their resources toward stealth marketing strategies, including embedded content, viral marketing, targeted online advertising, promotional tie-ins, and more. Research suggests product placements need not be consciously perceived to have an impact; they exert equally strong effects on brand preferences whether or not viewers recall seeing the embedded product (Law & Braun-LaTour, 2004).

Like emotional advertising, these types of advertising pose additional barriers to processing ability. Harris and colleagues (2009) argue, “marketing programs that influence through social cognitive processes may be especially difficult to defend against and suggests a significant opportunity for research” (p. 248). In particular, research is needed regarding (1) whether individuals are aware of these forms of marketing, (2) the extent to which they are able to discern persuasive intent in such practices as celebrity endorsements, use of popular characters, product placements, and advergames, and (3) the extent to which awareness of persuasive intent mediates outcomes. Media literacy researchers and practitioners have not, by-and-large, adjusted to the development of more sophisticated marketing techniques. The advertising industry will continue to take advantage of emerging social cognitive research on

automatic and affective processes. Media literacy researchers must rise to the challenge. As such, approaches to media literacy based solely on explicit processes are inadequate.

**Entertainment narratives.** Media influence is not limited to advertising. Entertainment narratives in particular may be uniquely situated to bypass cognitive defenses, and thereby overcome resistance. The mechanisms underlying narrative persuasion are not well understood, but social psychologists are beginning to venture into this area (e.g., Dal Cin, Zanna, & Fong, 2004). One possible mechanism through which narrative persuasion is believed to operate is reduction of counterarguing. Whereas a rhetorical argument is easily recognized as a persuasive attempt, narratives can obscure whatever persuasive intent is embedded in the message. Slater (2002) further suggests it may be difficult to counterargue or discount the lived experiences of another person, whether real or fictional. Moreover, like contemporary forms of advertising, narratives do not necessarily have specific, identifiable arguments to refute.

Narratives may also overcome resistance by enhancing identification with characters, as well as involvement in the story (i.e., transportation). The cognitive and emotional demands associated with engagement in a narrative leave little motivation or ability to generate counterarguments (Green & Brock, 2000). ELM (Petty & Cacioppo, 1986) predicts that an attractive source (e.g., a well-liked protagonist) will be particularly persuasive under low-elaboration conditions, such as when cognitive resources are depleted. However, some of the persuasion variables elucidated in ELM may not even be applicable in narrative contexts. For example, Green and Brock found that need for cognition, a well-established moderator of rhetorical persuasion, does not moderate narrative persuasion.



Thus far, researchers have not investigated the mechanisms of narrative persuasion in the context of media literacy, though these theories have been used in the context of entertainment-education (E-E) to overcome resistance for prosocial purposes (e.g., Slater & Rouner, 2002). E-E refers to efforts to incorporate educational or other prosocial content (e.g., health-related messages) into narratives intended primarily for entertainment. Recent research in this area (e.g., Moyer-Gusé & Nabi, 2010; Murphy, Frank, Moran, & Woodley, 2011) suggests E-E programming overcomes various types of resistance (e.g., reactance and perceived invulnerability) by masking persuasive intent and fostering parasocial interaction and identification with characters, as well as transportation into the narrative. Media literacy and E-E are in many ways complementary strategies, though their practitioners tend to employ different tactics. Media literacy efforts have traditionally followed from the field's protectionist origins, and could be characterized as an attempt to resist the natural tendency to favor efficiency motives over accuracy (e.g., persuasion through affective and other unconscious mechanisms) with the primary goal of curtailing the negative effects of harmful (e.g., unhealthy, antisocial) media messages. E-E efforts, on the other hand, *capitalize* on these very same tendencies with the goal of maximizing the benefits individuals derive from media.

**Focused resistance.** Some media literacy proponents, particularly those aligned with ACME's anti-corporate stance, advocate broad resistance to mass media. This approach presupposes, however, that all media messages are unhealthy, illegitimate, or otherwise inappropriate. While the dangers of insufficient resistance are self-evident, indiscriminate resistance can produce negative consequences, including reactance. Depending on the context, "misplaced skepticism" can be just as unproductive as "maladaptive gullibility" (Sagarin &

Cialdini, 2004, p. 259). Recognizing the potential pitfalls of indiscriminate resistance, McGuire (1964) advocated for the development of “pretreatments that would make the person receptive to the true and resistant to the false” (p. 192). Few scholars, however, have attempted to address this question of how to *focus* resistance.

In addition to tackling illusions of invulnerability, Sagarin and colleagues’ (2002) research examined a minimal intervention designed to provide a simple rule for discriminating between legitimate and illegitimate uses of authority in advertising. Inappropriate use of authority was defined as follows: “the depicted authority does not at least possess special expertise on the topic” (p. 528). The intervention successfully increased both resistance to ads featuring illegitimate authorities and receptivity to those utilizing legitimate authorities. Given the extent of cognitive and motivational barriers to effortful processing of media messages, as well as media specifically designed to undermine effortful processing, developing similar heuristics (or other low-effort strategies) for distinguishing between other types of “legitimate” and “illegitimate” messages would be a useful addition to the media literacy toolbox.

### **Conclusions**

The present research represents a departure from traditional, effectiveness-focused media literacy research. Rather than viewing media literacy as a stable trait, this process-based approach enables it to be studied as a context dependent state, and examine how its mechanisms operate under various cognitive and motivational constraints. The current research suggests media literacy approaches focused on thorough processing of media messages may be ineffective under conditions in which the motivation or ability to engage in such high-effort processing is compromised. That said, even extremely minimal media literacy interventions (such as

demonstrating personal vulnerability to a single print ad) can successfully promote distrust and reduce the perceived persuasiveness of unrelated ads in the short term, and individuals need not perceive themselves as vulnerable to media influence for such interventions to be effective. Additional research is needed, however, regarding how to implement such interventions without promoting reactance. Consistent with previous research, emotional forms of advertising are particularly persuasive, and appear to operate by circumventing logic. Future research might investigate why, despite intuitively distrusting emotional ads, individuals still find such ads so persuasive.

As an emerging discipline, media literacy is at the ideal stage of its development for the integration of novel approaches and innovative methods. Given the current educational and political climate, the need for further theory-driven, methodologically rigorous research into media literacy, particularly its cognitive mechanisms, cannot be overstated. Social psychological theory and research in the areas of persuasion, social cognition, affect, and motivation have the potential to challenge the validity of various assumptions underlying the study and practice of media literacy. At the same time, social psychologists, particularly those interested in the dynamics of resistance, can extend their reach beyond the laboratory and help to inform how the citizens of tomorrow will (or will not) learn to cope with the ever-increasing onslaught of mass media messages. With an enhanced understanding of the mechanisms underlying media literacy, educators can more effectively empower future generations to become active and engaged consumers of media, able to use media in service of their own goals, “rather than default to the media using them” (Potter, 2004, p. 271).

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**APPENDIX A:**  
**CONDUCTING RESEARCH ON AMAZON MECHANICAL TURK**

**Mechanical Turk Literature**

For the present research, all participants were recruited (and data were collected) on Amazon Mechanical Turk (MTurk; [www.mturk.com](http://www.mturk.com)). Although it was initially conceived as a “crowd-sourcing” platform for businesses, increasingly social and behavioral researchers are using MTurk as a recruitment and data collection tool for survey-based research. While still young, the growing literature on MTurk (e.g., Iperiotis, 2009; Paolacci et al., 2010) suggests it has both advantages and disadvantages. These are discussed below, along with available evidence regarding the internal and external validity of MTurk-based research.

**Practical advantages and disadvantages.** MTurk offers a number of practical advantages over traditional recruitment methods (e.g., lab-based research with university student subjects, other online research). Whereas in lab-based research, the number of participants is limited by the size of the available subject pool, MTurk has more than 100,000 users from over 100 different countries (Buhrmester et al., 2011). This means that a large number of respondents can be recruited in a short time frame, depending on the stringency of the inclusion criteria. For a three-minute survey offering compensation of ten cents (a rate of two dollars per hour), Paolacci and colleagues (2010) reported collecting 1,000 responses from U.S.-based workers in three weeks. The cost of recruitment via MTurk is exceptionally low, making it an ideal tool for graduate students with limited research funding.

In addition to the speed and low cost of recruitment, MTurk can be set up to interface seamlessly with an external website. This flexibility allows the researcher to collect data using

existing survey tools (e.g., SurveyGizmo) or even create a customized survey platform with advanced features (e.g., random assignment, embedded video, other multimedia stimuli), as in the present research. Finally, MTurk enables participants to remain completely anonymous to researchers. This anonymity is built into the system. The researcher has no interaction whatsoever with participants, beyond the published description of the survey (i.e., HIT, or human intelligence task). Participants are assigned ID numbers through Amazon.com, which are used to match responses with compensation claims. The compensation process is managed entirely by Amazon; the researcher is only required to approve responses for compensation.

Potential disadvantages of MTurk include various technical problems and “bugs” that have been reported. However, technical problems are endemic to any form of online research, and particularly those requiring synchronization of different software (e.g., linking MTurk to an external survey tool). The potential for technical difficulties can be reduced by thoroughly testing the recruitment and data collection mechanisms on different browsers prior to commencing the research. Another potential drawback is that unsupervised subjects may be less attentive than lab-based subjects being watched by an experimenter. Online participants may become distracted during the experiment and navigate away from the survey instrument, or they may actively attempt to cheat (e.g., using search engines to look up answers to factual questions). As with technical difficulties, such problems are possible in any form of online research, and even supervised lab studies can produce poor-quality data. However, research suggests these problems are highly uncommon (Gosling, Vazire, Srivastava, & John, 2004; Paolacci et al., 2010). To some extent, the researcher can identify inattentive or cheating participants by including manipulation checks and recording time spent on each section of the survey. In the present research, participants were not permitted to pause or restart the video ads. As in any research, the

importance of data screening cannot be overstated. Finally, requesters must approve survey responses for respondents to receive compensation. Although this requirement introduces some undesirable subjectivity into the experimental setting, the researcher can establish objective standards for what, if anything, justifies non-approval (e.g., obvious evidence of cheating or lying).

**Internal and external validity.** Some commentators have expressed concern about potential threats to internal validity and generalizability, but research suggests these fears are largely unfounded. According to Paolacci and colleagues (2010), relative to other recruitment methods, MTurk has low risk of contamination between experimental conditions. The anonymity afforded by MTurk renders the potential for experimenter effects virtually nonexistent. Moreover, because each MTurk ID number must correspond to a unique bank account or credit card number, the risk of participants providing multiple responses to the same survey is minimal. There is some potential for non-response error, but this appears to be less than in Internet convenience samples. Because MTurk users often complete multiple HITs, sometimes during the same session, concerns about data quality are not uncommon. There is little evidence, however, to support the assumption that Internet-based research in general (Gosling et al., 2004) or MTurk in particular (Buhrmester et al., 2011; Paolacci et al.) produces poorer quality data than traditional methods.

The best way to ensure high external validity is to use probability-based, random sampling methods. Such methods are often prohibitively expensive, and even the most rigorous sampling methods have some margin of error. Like other Internet-based samples, participants recruited through MTurk are self-selected and have access to the Internet. They are likely to choose to complete HITs that interest them or that pay (relatively) well. While not representative

of the U.S. population at large, research suggests MTurk samples are comparable to Internet convenience samples recruited through other means, and more representative of the adult U.S. population than traditional college student samples (e.g., Iperiotis, 2009; Paolacci et al., 2010). Paolacci and colleagues conducted a demographic survey of one thousand U.S.-based MTurk users in February 2010. According to their results, MTurk users are predominantly female (65%) and slightly younger than the U.S. population (mean age: 36, median age: 33). They have a higher educational level, on average, but lower income than the general population (two-thirds earn less than \$60,000 per year). In their research, Paolacci and colleagues replicated a number of standard judgment and decision-making tasks with samples recruited through MTurk, and their results do not differ significantly from those utilizing more traditional recruitment methods (for more comparisons of MTurk and other methods, see <http://experimentalturk.wordpress.com>).

### **The Present Research**

Other researchers have used MTurk in conjunction with SurveyGizmo or other commercial survey software. In essence, MTurk is used as a recruitment and compensation tool, while the data are collected and stored elsewhere. This method requires participants to follow a link to an external site to complete the survey. They then return to MTurk to submit a confirmation code, which the researcher then uses to verify that survey has been completed. The present research required a number of features that were not available on commercial survey software. Although SurveyGizmo does support embedded video, there was no feasible way to prevent participants from controlling playback. Moreover, at the time of this research, SurveyGizmo did not have features for generating multimedia distractions in conjunction with the videos. As such, I contracted with a software developer to build customized survey

instruments for Pilot Study 1, Pilot Study 2, and the main study (I built the simple instrument for Pilot Study 3 using the survey templates available on MTurk). All features related to the experimental manipulations were contained in these instruments. The survey instruments were hosted on an external web domain owned by me, but embedded in MTurk window such that participants were not required to leave MTurk at any point during the survey.

Beyond the ability to include advanced multimedia features, this approach had numerous advantages. The random assignment mechanism was built into the survey instrument itself. Moreover, by maintaining a database of worker IDs that had already participated in the same survey (or a previous survey), I was able to prevent participants from taking the same survey more than once, and exclude those who participated in any of the three pilot studies. This feature also allowed me to repost the survey as a new HIT every few days, which returned it to the top of the list of available HITs. Those workers who participated in same survey under a different HIT number were able to see the preview, but not proceed to the survey itself.

The disadvantages of this approach were minimal, and mostly technical in nature. The survey instrument was embedded within a rather narrow window on MTurk. As a result, some participants complained about having to scroll to see all the questions. Also, when the participant continued to the next page, sometimes the survey would automatically load at the bottom of a given page, requiring them to scroll to the top of the screen to begin. Finally, the distractions did not work on Internet Explorer 7 or prior versions. As such, participants using these browsers were excluded *post hoc*.

## **Recommendations**

The following recommendations for conducting research using MTurk are drawn primarily from my personal experience and that of my colleagues, in conjunction with the emerging literature on MTurk.

### **Avoiding Technical Problems**

If the survey has special features (e.g., sound, embedded images, video, Flash animation), the researcher should note any technical requirements in the overview of the survey. For example, if the survey has audio, participants should be instructed to make sure the sound on their computers is enabled. JavaScript and Flash should also be enabled for those who utilize script blocking software. It is advisable to ask participants whether certain technical elements worked correctly (e.g., “did the video play?”) or include an open-ended field at the end of the survey for participants to give feedback; some will note technical problems they encountered. Before going live, it is recommended that researchers post the survey in the worker sandbox ([workersandbox.mturk.com](http://workersandbox.mturk.com)). This free feature allows the researcher to see exactly how the survey will look and operate through MTurk, test out any skip logic, or run through the survey to see how long it takes. If the researcher wishes to test the survey more than once, this will require multiple HITs to be posted. The research might also choose to beta test the survey on a small sample of actual MTurk workers to catch any unanticipated problems prior to going live.

### **Data Quality**

To reduce concerns regarding data quality, the researcher might consider excluding participants from outside the U.S. (MTurk has a built in qualification to do so based on the location of the worker’s account). It is generally recommended that requesters set the required pre-approval rate to at least 95%. In addition to these methods, I included “trip questions” (i.e.,



instructional manipulation checks) designed to catch “bots,” as well as participants who were not paying attention. Participants were forewarned about the existence of these trip questions, and informed that they would not receive compensation if they failed. To reduce the potential of worker backlash, I ultimately chose to compensate all participants who completed the survey (i.e., reached the end and clicked submit), regardless of performance on the trip questions. However, any participant who failed at least one trip question was excluded from the analysis. Researchers might also use statistical means of catching poor-quality data (e.g., examining pairs of items that should be negatively correlated) or pre-qualifying participants (either using an existing qualification or creating a new test). The latter approach has the disadvantage of reducing the potential sample substantially.

To prevent participants from taking the survey more than once, I included a mechanism to automatically exclude workers who had completed the survey under either the same HIT or a different HIT. The researcher could do this by adding a qualification, but this would require manually updating the exclusion list each time a new HIT is posted, which could be rather labor intensive. Despite the researcher’s best intentions, there is always a possibility that participants may have more than one worker ID and thereby complete the survey more than once. MTurk takes measures to prevent this (e.g., requiring each worker ID to be linked to a unique bank account or credit card), but it may not be possible to eliminate this risk entirely.

Imposing a time limit on completion of the survey may also enhance data quality by reducing the likelihood of participants becoming distracted and stepping away, or multitasking (e.g., watching TV) while completing the survey. I also chose to impose *post hoc* time limits based on the actual distribution of time to complete the survey, excluding the top and bottom 2.5%. In this way, I was able to exclude a number of participants who completed the survey in an

unrealistically short amount of time, as well as those who were almost certainly not focused on the survey the entire time. Depending on the stringency of the exclusion criteria (e.g., trip questions, time limits), it is generally advisable to recruit between 20% and 50% more respondents than needed. In my main study, approximately 30% of participants were ultimately dropped.

### **Approval and Compensation**

Requesters have the option of approving or rejecting each individual survey response. If the response is rejected, the worker will not receive compensation. That said, there are anecdotal reports of MTurk workers lodging complaints against requesters who rejected their work, even if the survey was rejected for legitimate reasons, sometimes going as far as having the researcher's MTurk account shut down. Given these risks, it may be advisable to approve (i.e., compensate) all participants who finish the survey, even if their responses do not meet data quality standards. This means that the researcher will likely end up paying for 20 to 30% more respondents than are actually usable. If this is not feasible given the project budget, researchers should be absolutely explicit about criteria for approval, or what will result in workers' responses being rejected. Researchers should avoid "blocking" any worker through MTurk. Once a worker has been blocked a certain number of times, their account will be shut down and they will no longer be able to complete MTurk tasks. Researchers who are running multiple studies can set up their own qualifications to exclude "bad" workers from participating in subsequent studies.

In general, the researcher should tailor the rate of compensation to the estimated completion time for the survey. It may be helpful to browse MTurk HITs for surveys of similar length to determine the market rate. In general, a higher level of compensation appears to

translate into a faster rate of response. However, there may be a point of diminishing returns, at which workers will complete the survey primarily for the money.

### Response Rates

Anecdotally, in my own research and that of others, because workers can sort HITs by time remaining, HITs often receive a rush of responses in the last few hours before expiring. As such, it is generally advisable to allow each HIT to expire (or very nearly expire) before refreshing (i.e., soliciting more responses/adding more time) or reposting the survey under a new HIT. I generally kept HITs posted continuously overnight, as I often received a lot of responses late at night and in the early morning hours. In my research, I saw the fastest rate of responses early on, tapering off after the first few days, but there was nearly always a spike on weekends, as shown in Figure A1. Response rates tended to be slowest in the middle of the week (Tuesday through Thursday).

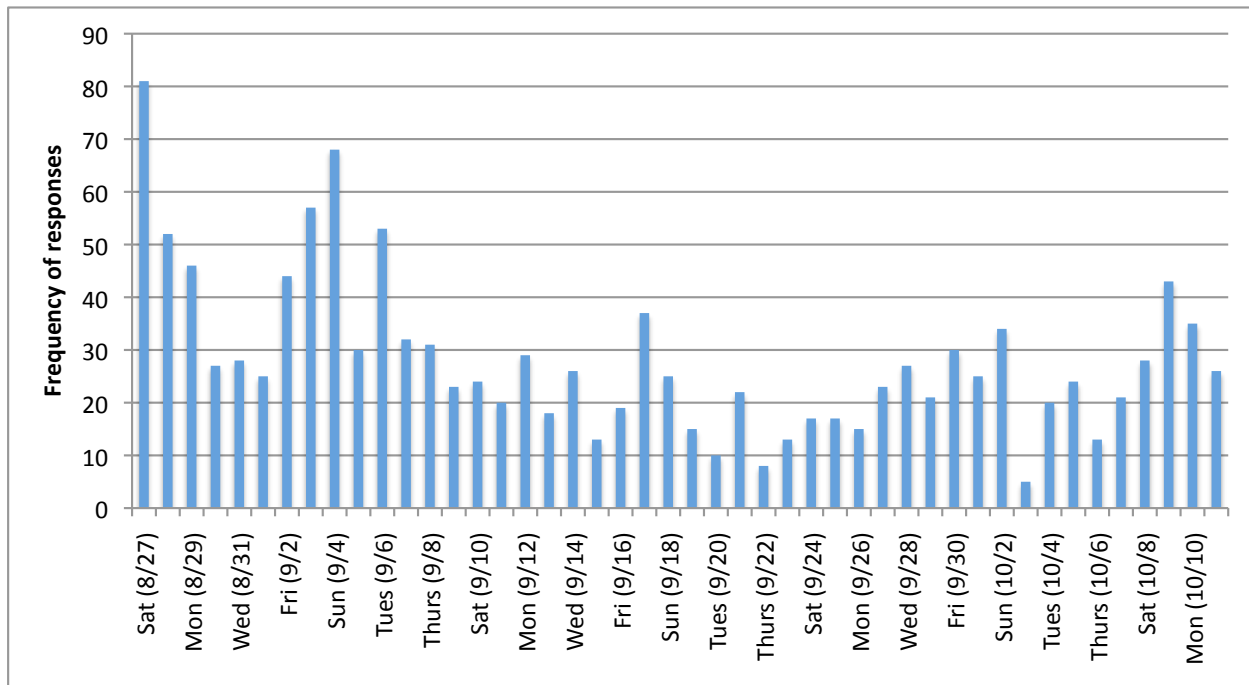


Figure A1. Daily response rates in main study, August 27 to October 11, 2011.

## APPENDIX B: STIMULUS MATERIALS

### Video Ads

#### Ad 1: McCain's Sweet Potato Superfries (2010)

**Product:** Sweet potato fries

**Source:** YouTube.com

**Used in:** Pilot Study 1

**Synopsis:** Young woman tries to convince her father to try sweet potato fries. Father is initially skeptical, but after trying the fries, is converted.

#### Transcript:

Woman: [Carries bowl of sweet potato fries outside to table, where family members are seated.]

*Here you are.*

Father: [Exclaims] *Orange? What do you call these?*

Woman: *They're sweet potato superfries.*

Father: *What's wrong with normal fries?*

Woman: *Nothing, but these are made with sweet potatoes.*

Father: [Turns fry over in his fingers, looking at it skeptically] *Well they better taste just as good.*

Woman: *Dad, sometimes it's worth trying something a little different.*

[Mother looks on in agreement.]

Father: [Takes a bite. Looks surprised.] *That's good!*

Woman: *They're all good, Dad.*

Male announcer: *New McCain's Sweet Potato Superfries, rich in vitamin A, with the delicious taste of sweet potato.*

[Camera pans out to show entire family partaking in sweet potato fries. Bowl of sweet potato fries displayed in front of bags of the product (crinkle cut and thin cut).]

Male Announcer: *Ah McCain...you've done it again.* [Text simultaneously displayed on screen.]



Figure B1. Screen shots from McCain's Sweet Potato Superfries ad.

## **Ad 2: Abbott's Village Bakery (2010)**

**Product:** Bread

**Source:** YouTube.com

**Used in:** Pilot Study 1, Main Study

**Synopsis:** Young couple camping, silently roasting bread over campfire and lightheartedly teasing each other.

### **Transcript:**

[Couple outside tent, in front of campfire. Appear to be watching a sunrise. Soft guitar music plays. Man roasts a slice of bread over campfire as woman butters toast. Loaf of Abbott's Village Bakery bread is visible. Woman adjusts blanket to cover her shoulders. Man stands up, picks up log he was sitting on, and throws it on the fire.]

Male announcer: *From a time when climate change meant throwing another log on the fire, and bread was baked with a generous spirit.*

[Man steals woman's slice of bread and takes a bite. When he lowers the bread to his side, she sneaks a bite, hugging him around his legs.]

Announcer: *The way it should be. Abbott's Village Bakery.* [New scene with loaf of bread, slices fanned out in front of unopened package of bread, cup of jam, and fire.]

On screen text: *The way it should be.*



Figure B2. Screen shots from Abbott's Village Bakery ad (emotional ad in main study).

### Ad 3: McDonalds McCafe (2010)

**Product:** Coffee

**Source:** YouTube.com

**Used in:** Pilot Study 1

**Synopsis:** Blind taste test of McCafe coffee versus another leading brand, on the streets of Sydney, Australia.

#### **Transcript:**

[Female host shown carrying tray with two cups of coffee.]

On screen text [small print at bottom of screen]: *Source: Central Location Sensory Study conducted on 16th February 2010 in Sydney NSW.*

Host: *Blind taste tests have shown that more people prefer McCafe coffee when compared to coffee from another leading chain. But don't just take our word for it. Let's go see what others have to say.*

On screen text [small print at bottom of screen]: *Street Test: September 13 and 14 2010, Circular Quay, Sydney NSW.*

Host: *Got two coffees here, tell me which one you prefer.*

Woman on street: *That one [pointing].*

Second woman: *Definitely the one on the right.*

Man: *It's strong, it's rich.*

Second man: *It's far more creamy, I think.*

Third man: *It's just a fuller taste.*

Second woman: *Where is it from?*

[Host holds up McCafe platter.]

First woman: *Really? That is very surprising.*

Fourth man: *McCafe.*

Third man: *I don't believe it.*

Host: *So there you have it. Clearly there's more to McCafe.*

On screen text: *There's More To McCafe.* [Coffee drink shown in soft focus.]

Host: *So, put it to the test yourself.*



Figure B3. Screen shots from McCafe ad.

#### Ad 4: McCain's Oven Chips (2010)

**Product:** French fries

**Source:** YouTube.com

**Used in:** Pilot Study 1

**Synopsis:** Montage of scenes of various families, memories and milestones, set to the song “Give a Little Bit” by Supertramp.

#### **Transcript:**

[Shot of framed family pictures on wall, with “Pride” in the center. Children’s artwork on fridge, papier-mâché face presumably sculpted by child. Woman admiring papier-mâché. Older man taking a picture of family with three generations. Boy, father, grandfather posing with model ships. Family camping. Plates with baby footprints. Young boy playing soccer. Woman cheering. Trophies. Toddler girl building with blocks. Hands blocks to father. Wall covered with awards. New diploma appears. Kids cheering for grandfather in road race. Father and daughter at outdoor concert. Wedding video. Teenage boys dressed for prom, posing awkwardly for picture.]

Mother: *Oh, my boys!*

[Shot of framed picture of teenage boys dressed for formal dance. Children dressed as cowboys, chasing each other, hanging from arms of man with tiny cowboy hat.]



On screen text: *If it matters to family, it matters to us.* [Framed shots of McCain products on wall.]

Announcer: *McCain. It's all good.*



Figure B4. Screen shots from McCain's Oven Chips ad.

#### **Ad 5: Continental Cook-in-Bag (2010)**

**Product:** Marinade mix for chicken

**Source:** YouTube.com

**Used in:** Pilot Study 1, Pilot Study 2, Main Study

**Synopsis:** Mother and two children preparing dinner. Son is skeptical about "chicken in a bag," but the mother demonstrates "three easy steps," and the children participate in the preparation process.

#### **Transcript:**

On screen text: Continental Fresh Ideas (in partnership with Woolworths)

Female vocal: *Continental fresh ideas...* [trailing off]

[Mother chopping vegetables. Son picks up package of marinade mix.]

Son: *What's this?*

Mother: [Placing chicken in plastic bag] *Continental Cook-in-Bag...it's a tasty new way to cook chicken.*

Son: [Examining marinade mix. Looks skeptical.] *Chicken in a bag...really?*

Mother: *In three steps...watch this. One* [pours mix into plastic bag], *two* [ties bag shut], *give it a shake.* [Demonstrates shaking]

Daughter: *Can I do it?* [Reaching for bag]

[Daughter shakes bag of chicken. Son pulls it away.]

Mother: *Three...roast in the oven* [Shown putting entire bag in oven, in baking dish.]

[New scene. Sauce being drizzled over chicken. Family is seated at dinner table. Father is now present.]

Father: *Mmmm. This is new. It's so juicy!*

Mother: [Glancing knowingly at children] *We thought we'd shake things up a bit.*

[Children giggle. Jingle from beginning of commercial replays.]

Female Announcer: *New Continental Cook-in-Bag. On special this week at Woolworths.* [Four different varieties of Continental Cook-in-Bag displayed.]

On screen text: *On Special This Week at Woolworths*



Figure B5. Screen shots from Continental Cook-in-Bag ad (informational ad in Pilot Study 2 and main study).

## **Ad 6: Tip Top Bread (2010)**

**Product:** Bread

**Source:** YouTube.com

**Used in:** Pilot Study 1, Main Study

**Synopsis:** Various individuals from all walks of life perform ode to Tip Top Bread.

### **Transcript:**

Old man: [Sitting in leather chair] *I love a toasted sandwich, when it's made from Tip Top Bread.*

Young man: [Preparing very thick sandwich] *Those mountains made at midnight.*

Possibly naked man: [Carrying tray of toast and coffee] *Cafe service in your bed.*

[Young woman in bed giggles.]

Young girl: [Using bread to soak up sauce from bowl] *I love washing up the dishes.*

Middle aged man: *And those muffin tops I see.* [Woman in foreground with "muffin-top," preparing English muffins.]

Young man: [Resting head on young woman's chest while she eats a sandwich] *That soft, familiar texture.*

Young boy: [Sitting at bus stop in the rain, holding sandwich] *Shows she really cares for me.*

Team of teenage male rugby players: *And we'll forever eat it.*

Losing team of teenage male rugby players: *Even when we are the losers.*

Man grilling at rugby match: *So raise your tongs to Tip Top.*

[Rugby players raise up sandwiches, followed by old man from beginning. Naked man raises tray. Young man preparing giant sandwich finally finishes, looks proud of his creation]

Toddler girl: *The bread that my mom chooses.*

On screen text: *Tip Top. Australia's favourite bread.*



Figure B6. Screen shots from Tip Top Bread ad (emotional ad in main study).

### **Ad 7: Uncle Toby's Oats (2010)**

**Product:** Microwaveable oatmeal

**Source:** YouTube.com

**Used in:** Pilot Study 1, Main Study

**Synopsis:** Infomercial-style commercial featuring single character, “Gavin,” playing both the host and the skeptic, carrying on a conversation with himself.

#### **Transcript:**

Gavin 1: *So, Gavin. What is new in oats?*

On screen text: *G'day with Gavin*

Gavin 2: [In kitchen, holding up container of microwaveable oats] *Funny you should ask, Gavin.*

[Turns to face camera head on] *Because the Uncle Toby's team has created a new way to get your oats, in a convenient, no miss, no fuss [close up on cup] microwaveable cup.*

Gavin 1: [Cup of creamy honey oats floating on screen] *Microwaveable! In a cup!* [Appears confused] *Really?!?*

Gavin 2 [off-screen]: *Really!*

Gavin 2 [on-screen]: *In fact you don't even need a bowl [swipes bowl off counter], so it's perfect on busy mornings.*

[Gavin 1 looks impressed.]

Gavin 2: [Split screen shows Gavin removing the cup's cover on one side, adding milk on the other] *Just rip off the top, in with some milk* [adding time to microwave] *60 seconds later* [listening for microwave, microwave dings, removes cup from microwave]. *Mmmm...creamy honey.*

Gavin 1: *Does anybody do oats like Uncle Toby's?*

Gavin 2: *Nobody does oats like Uncle Toby's, Gavin. Nobody.*

[Three varieties of Uncle Toby's microwaveable oats displayed.]

On screen text: *Nobody does oats like Uncle Toby's.*



Figure B7. Screen shots from Uncle Toby's Oats ad (informational ad in main study).

### **Ad 8: Perfect Italiano (2010)**

**Product:** Assorted cheeses

**Source:** YouTube.com

**Used in:** Pilot Study 1

**Synopsis:** An idealized romance novel-style man poses and preens, demonstrating how well he fits traditional notions of romantic perfection.

**Transcript:**

[Man in fencing gear posed in front of full-size portrait of himself.]

Man: [Speaking with Italian accent] *I love to multitask, and I love to listen.*

[Now preparing Italian food in modern kitchen.]

Man: *And if I have no woman to listen to, I practice my listening face.* [Looks down briefly.

Stares directly into camera with intense face.]

On screen text: *Perfect Italiano Parmesan* [Close up on parmesan cheese being sliced and placed atop antipasto.]

Man: *I love to listen with power.*

On screen text: *Perfect Italiano Mozzarella* [Close up of shredded mozzarella being sprinkled on lasagna. Piece of cooked lasagna on plate.]

Man: *I love to hear of the problems of your friends.* [Squints as if listening intensely] *Tell me more.*

[Close up of basil leaves being delicately placed on pizza. Camera cuts to assorted Perfect Italiano Cheeses (parmesan, shredded mozzarella, pizza plus, ricotta, mozzarella, and romano) displayed with tomatoes, olives, and basil leaves.

Female announcer: [With Italian accent] *Sadly, finding the perfect man isn't as simple as cooking with Perfect Italiano.*

On screen text: *So Simple. It's Perfect.*

Man: *I am listening. And painting.* [Paints picture of deer.]



*Figure B8.* Screen shots from Perfect Italiano ad.

### **Distractions**

The distraction stimuli in both Pilot Study 2 and the main study were colored (red or blue) rectangles, spaced at varying locations and intervals throughout the video ads. Each stimulus remained on screen for a half second. Pilot Study 2 had eight possible levels of distraction: 2 (number of video plays: single or double) x 4 (level of distraction: none, low, high one color, high two color). For the low, high one color, and high two color distraction conditions, the distractions were spaced at varying intervals across either 30 or 60 seconds, depending on the number of video plays. The size and interval of each distraction stimulus from the start of the first video play are shown for each condition in Table B1. The high distraction one color and two color conditions differed only in that half of the distraction stimuli were blue in the two color condition. The main study followed the arrangement of distraction stimuli in the high distraction, single play, one color condition (shown in dashed region).

Table B1

*Sizes and Intervals of Distraction Stimuli in Pilot Study 2 and Main Study*

	Low (single play)		High (single play) and Main Study		Low (double play)		High (double play)	
	Size (pixels)	Seconds from start	Size (pixels)	Seconds from start	Size (pixels)	Seconds from start	Size (pixels)	Seconds from start
1	20 x 30	5.0	20 x 30	2.5	20 x 30	5.0	20 x 30	2.5
2	40 x 35	18.0	40 x 35	9.0	40 x 35	18.0	40 x 35	9.0
3 <sup>a</sup>	30 x 20	26.0	30 x 20	13.0	30 x 20	26.0	30 x 20	13.0
4			25 x 25	21.5	25 x 25	43.0	25 x 25	21.5
5 <sup>a</sup>			30 x 40	23.0	30 x 40	46.0	30 x 40	23.0
6 <sup>a</sup>			35 x 30	27.5	35 x 30	55.0	35 x 30	27.5
7 <sup>a</sup>							35 x 20	30.5
8							35 x 40	38.0
9 <sup>a</sup>							20 x 30	42.0
10							25 x 25	44.0
11							40 x 30	49.5
12 <sup>a</sup>							30 x 35	56.5

<sup>a</sup> Blue stimuli in high distraction, two-color conditions

### Print Ad

The print ad for Wendy's® Berry Almond Chicken Salad was used in Pilot Study 3 and the vulnerability manipulation in the main study. The ad appeared in the May 2011 issue of *Cooking Light* and was scanned into a digital (JPEG) image format. The image was cropped slightly in order to fit within the MTurk window, and the brand name (Wendy's) was obscured. Because the text "For a limited time only" was cropped out of the original version, it was recreated in the final version. An image of the ad, as it appeared in both studies, is shown in Figure B9.



**NEW**

## BERRY ALMOND CHICKEN SALAD

Now at: \_\_\_\_\_; taste the difference fresh can make – with hand-cut strawberries and plump blueberries, picked at the peak of the season. Served with a tender grilled chicken breast, eleven kinds of greens, Asiago cheese and roasted almonds. Drizzled with all-natural, fat-free raspberry vinaigrette. Try it today, because our fresh-picked berries only last as long as summer!

# BERRY BERRY GOOD

For a limited time only.

Figure B9. Print ad used in Pilot Study 3 and the main study.

## APPENDIX C: SURVEY INSTRUMENTS

The following survey instruments include all text related to the manipulations and all survey items. Unless otherwise stated, all items were required. After continuing to the next page, participants were not permitted to return to a previous page.

### Pilot Study 1

#### **Mechanical Turk Preview Text**

[The following text was displayed to individuals who chose to preview the HIT, before accepting the HIT.]

*This survey is part of a dissertation research project being conducted by a graduate student in psychology at Claremont Graduate University in California.*

#### **AM I ELIGIBLE?**

*You are NOT eligible to participate if any of the following is true:*

- *You are younger than 18 years old*
- *Your location is outside the United States*
- *You are not able to read and write fluently in English*
- *Your MTurk approval rating is less than 95%*
- *You have taken a previous version of this survey with the same title*

#### **WHAT DO I HAVE TO DO?**

1. *You will be asked to watch two brief video advertisements (commercials).*
2. *You will be asked some questions about the product featured in the ad, as well as how you felt about the ad itself. You may watch each ad as many times as you need to by clicking “Replay,” but once you start working on the questions, YOU WILL NOT BE ABLE TO RETURN TO THE AD. After watching both ads, you will be asked some questions about your background.*
3. *Please note that there are a few questions intended to trip up “bots” and people who are not paying attention. These “trip” questions will tell you how to respond, so please be sure to read ALL instructions and questions. If you get any of these questions wrong, your work will be rejected.*
4. *The entire survey should take you no more than 10 minutes. Once you accept, you can return the HIT at any time, but you will not be able to start the survey over again.*

## **APPROVAL CRITERIA**

*In order for your work to be approved, you MUST:*

- 1. Answer all required questions and click “SUBMIT SURVEY” at the end of the survey.**
- 2. Correctly answer all “trip” questions designed to verify that you are paying attention, and are not an automated computer script or answering entirely at random.**

*If your work is approved, you will receive \$0.40 (forty cents) for completing this HIT.*

*We will try to check your work within a few hours and issue approval or rejection. If we do not get to your work sooner, the HIT has been set to automatically approve every 24 hours, so the longest you should have to wait is one day.*

## **TECHNICAL REQUIREMENTS**

*Because this survey includes video, you must have JavaScript and Flash enabled on your browser, and your computer’s sound must be turned on. Please check now, before you click “Accept HIT.”*

### **Screening Questions**

1) Are you age 18 or older?

- No
- Yes

[If yes, continue]

[If no] *We’re sorry. To participate in this research study, you must be age 18 or older. If you are not automatically redirected back to Mechanical Turk, please click here.* [Exclude and redirect to MT]

2) Do you read English fluently?

- No
- Yes

[If yes, continue]

[If no] *We’re sorry. To participate in this research study, you must be fluent in English. If you are not automatically redirected back to Mechanical Turk, please click here.* [Exclude and redirect to MT]

3) Is your primary residence in the United States?

- No
- Yes

[If yes, continue]

[If no] *We're sorry. To participate in this research study, your primary residence must be in the United States. If you are not automatically redirected back to Mechanical Turk, please click here.*  
[Exclude and redirect to MT]

### **Consent Page**

[Consent form]

### **Survey Questionnaire**

*You will be asked to watch two different video advertisements (commercials) from Australia or the United Kingdom. The advertised products and brands may be unfamiliar to you. While watching these commercials, please imagine that the advertised product is available in the United States.*

*It is VERY IMPORTANT that you pay close attention to the commercials because you will be asked to answer questions about them afterwards. Some of these questions ask how you felt about the BRAND FEATURED IN THE COMMERCIAL. Other questions ask how you felt about the COMMERCIAL ITSELF.*

*You may watch each commercial as many times as you need to by clicking "Replay," but once you click "Continue to Questions," YOU WILL NOT BE ABLE TO RETURN TO THE COMMERCIAL TO WATCH IT AGAIN.*

[First video ad plays automatically.]

[After video completes, "Replay" and "Continue to Questions" buttons appear. If participant clicks "Continue to Questions," the following warning appears]

*Are you sure you want to continue to the questions? Once you move on, you will not be able to return to the commercial to watch it again.*

4) Did you experience any trouble viewing this video ad? (Check all that apply.)

- No
- Yes, it kept stopping and starting, but I replayed it and it worked fine
- Yes, it kept stopping and starting, but I got all the way through the video
- Yes, it froze in the middle and wouldn't start up again
- Yes, it wouldn't play at all
- Other \_\_\_\_\_

5) Please list any and all thoughts you had during the video. Enter only one thought per box below. [Three boxes presented initially, with opportunity to add more, up to 20.]

6) For each of the thoughts you listed, please indicate whether this thought was (1) negative toward the ad; (2) neutral toward the ad; (3) positive toward the ad; or (4) irrelevant (unrelated) to the ad.

Negative	Neutral	Positive	Irrelevant
----------	---------	----------	------------

7) Please identify the BRAND featured in this commercial. For example, If this had been a commercial for a Whopper from Burger King, the brand would be “Burger King Whopper” (just “Whopper” would also be acceptable). If you're not sure about the brand, please identify the type of product, for example: “burger” or just make your best guess.

\_\_\_\_\_

*The following questions ask how you personally felt about the BRAND featured in the commercial. The brand refers to the company and product being advertised. Later, you will be asked some questions about the commercial itself. For this set of questions, please focus only on the BRAND.*

8) I personally thought the BRAND featured in the commercial was \_\_\_\_\_.

1 Bad	2	3	4	5	6	7 Good
----------	---	---	---	---	---	-----------

9) I personally thought the BRAND featured in the commercial was \_\_\_\_\_.

1 Pleasant	2	3	4	5	6	7 Unpleasant
---------------	---	---	---	---	---	-----------------

10) I personally thought the BRAND featured in the commercial was \_\_\_\_\_.

1 Low Quality	2	3	4	5	6	7 High Quality
------------------	---	---	---	---	---	-------------------

11) IF YOU WERE TO USE THIS TYPE OF PRODUCT IN THE FUTURE, and it was available in the U.S., how likely are you to choose THIS PARTICULAR BRAND?

1 Extremely Unlikely	2	3	4	5	6	7 Extremely Likely
-------------------------	---	---	---	---	---	-----------------------

*The following questions ask how you personally felt about the COMMERCIAL ITSELF.*

12) I personally thought the COMMERCIAL ITSELF was \_\_\_\_\_.

1 Bad	2	3	4	5	6	7 Good
----------	---	---	---	---	---	-----------

13) I personally thought the COMMERCIAL ITSELF was \_\_\_\_\_.

1 Pleasant	2	3	4	5	6	7 Unpleasant
---------------	---	---	---	---	---	-----------------

14) I personally thought the COMMERCIAL ITSELF was \_\_\_\_\_.

1 Awful	2	3	4	5	6	7 Nice
------------	---	---	---	---	---	-----------

*The next set of questions relate to your perceptions of the commercial itself. For each statement, please indicate how much you agree or disagree, from 1 (strongly disagree) to 7 (strongly agree)*

1 Strongly disagree	2 Moderately disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Moderately agree	7 Strongly agree
------------------------	--------------------------	------------------------	---------------------------------	---------------------	-----------------------	---------------------

[Question order randomized]

- 15) This ad helps me weigh the pros and cons of the product.
- 16) This ad is designed to play on the viewer's emotions.
- 17) This ad provides information about the product.
- 18) A goal of this ad is to bring up positive memories.
- 19) This ad provides specific reasons to think about when deciding whether to buy this product.
- 20) One purpose of this ad is to connect with the viewer's values.
- 21) This ad focuses on concrete features of the product.
- 22) This ad seeks to make the viewer feel like they belong.
- 23) This ad tries to persuade viewers by making them emotional.

- 24) This ad provides useful information about the product that I can think about.
- 25) This ad is intended to bring up strong feelings in the viewer.
- 26) This ad helps the viewer think about the costs and benefits of this product.
- 27) This ad tries to persuade viewers by providing information.
- 28) This ad is intended to form an emotional bond with the viewer.
- 29) [Trip question] This ad is a commercial, but instead of rating this statement, choose the 'slightly disagree' option.

*The next set of questions relates to how YOU PERSONALLY felt about the ad.*

30) "I found this ad \_\_\_\_."

1	2	3	4	5	6	7
Unemotional						Emotional

31) "I found this ad \_\_\_\_."

1	2	3	4	5	6	7
Moving						Not Moving

32) "I found this ad \_\_\_\_."

1	2	3	4	5	6	7
Touching						Not Touching

*The next set of questions relate to how the commercial MADE YOU PERSONALLY FEEL.*

This ad made me feel \_\_\_\_.

1	2	3	4	5	6	7
Strongly disagree	Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree

33) Happy

34) Sad

35) Excited

- 36) Angry
- 37) Warm
- 38) Annoyed
- 39) Peaceful
- 40) Anxious
- 41) Calm
- 42) Disgusted

43) Have you ever seen this ad before today?

- Yes
- No

[Questions 44-83: repeat questions 4-43 for second video ad]

*Please answer a few questions about yourself and your background. These questions are optional. You may decline to answer any question that you do not feel comfortable answering.*

84) What is your sex?

- Male
- Female
- I'd rather not say

85) What is your age? \_\_\_\_\_

86) Are you Hispanic, Latino, or of Spanish origin? (Check all that apply)

- No, not Hispanic, Latino, or of Spanish origin
- Yes, Mexican, Mexican American, or Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, other Hispanic or Latino (please specify) \_\_\_\_\_

87) What is your race? (Check all that apply)

- White or Caucasian
- Black or African American
- Asian



- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- Other (please specify) \_\_\_\_\_

88) What is the highest level of education you have completed?

- Less than high school education
- High school diploma
- Some college, no degree
- Two-year/Associate's degree
- Four-year/Bachelor's degree
- Some graduate education, no degree
- Master's degree (examples: M.A., M.S., M.B.A., M.F.A.)
- Graduate or professional degree (examples: M.D., J.D., Ph.D.)
- I'd rather not say

89) Are you currently a student, or will you be a student in fall 2011? (Please select the answer that best represents your current status.)

- No
- Yes, in high school or a GED program
- Yes, in a vocational or technical school
- Yes, in a two-year college
- Yes, in a four-year college
- Yes, in a graduate or professional degree program
- Yes, in non-degree coursework or a certificate program

90) Can your parents (or anyone else) claim you as a dependent on their tax return? (If you are a full-time college student, the answer is most likely yes.)

- No, no one else can claim me as a dependent
- Yes, my parents or someone else can claim me as a dependent

91) What is your annual household income? (If you're not sure, your best guess is fine.)

- Less than \$15,000
- \$15,000 to less than \$30,000
- \$30,000 to less than \$50,000
- \$50,000 to less than \$75,000
- \$75,000 to less than \$100,000
- \$100,000 to less than \$150,000
- \$150,000 to less than \$250,000
- \$250,000 or more

92) How many people in your household are dependent on this income? (Include yourself as 1 person.) \_\_\_\_\_

93) What state do you live in? [Select from menu]

94) Anything else you want to share?

---

### **Debriefing Page**

[Debriefing form]

## **Pilot Study 2**

### **Mechanical Turk Preview Text**

[The following text was displayed to individuals who chose to preview the HIT, before accepting the HIT.]

*This survey is part of a dissertation research project being conducted by a graduate student in psychology at Claremont Graduate University in California.*

*This survey looks at people's ability to do two things at once. For this reason, it is **EXTREMELY IMPORTANT** that you are in a **quiet, distraction-free** environment while completing this HIT. Please take a moment to **turn off any TVs or music, minimize any other windows you might have open on your computer, and turn off email alerts**. Once you begin, you will only have **15 minutes** to complete this HIT, so it is very important that you not shift your attention elsewhere.*

### ***AM I ELIGIBLE?***

*You are NOT eligible to participate if:*

- *You are younger than 18 years old*
- *Your location is outside the United States*
- *You are not able to read and write fluently in English*
- *Your MTurk approval rating is less than 95%*
- *You have taken a previous version of this survey with the same title*

*If you completed a previous HIT titled "Survey: Opinions About Advertising, 10 minutes," there is a 25% chance you will not be eligible to complete this HIT, depending on which video ads you viewed in the earlier HIT. If you meet the criteria listed above and wish to participate, click "Accept HIT" and the survey will let you know whether you are eligible.*

## **WHAT DO I HAVE TO DO?**

1. You will be asked to watch a brief video advertisement (commercial), either one or two times. You may be asked to complete another task while watching the video.
2. You will be asked some questions about the video and how you felt while watching it, as well as some questions about your background.
3. Please note that there are a few questions intended to trip up “bots” and people who are not paying attention. These “trip” questions will **tell you how to respond** (for example, “I must choose option A”), so please be sure to read **ALL** instructions and questions. If you get any of these questions wrong, your work will be rejected.
4. The entire survey should take you no more than 6-9 minutes. Once you accept, you can return the HIT at any time, but you will not be able to start the survey over again.

## **APPROVAL CRITERIA**

In order for your work to be approved, you **MUST**:

1. **Answer all required questions and click “SUBMIT SURVEY” at the end of the survey.**
2. **Correctly answer all “trip” questions designed to verify that you are paying attention, and are not an automated computer script or answering entirely at random.**

If your work is approved, you will receive **\$0.40 (forty cents)** for completing this HIT.

We will try to check your work within a few hours and issue approval or rejection. If we do not get to your work sooner, the HIT has been set to automatically approve every 24 hours, so the longest you should have to wait is one day.

## **TECHNICAL REQUIREMENTS**

Because this survey includes video, **you must have JavaScript and Flash enabled on your browser, and your computer’s sound must be turned on.** Please check now, before you click “Accept HIT.”

[After accepting HIT, if participated in Pilot Study 1 and viewed same ad] *We’re sorry. Because you completed one of our previous HITs (‘Survey: Opinions About Advertising’) you are not eligible for this HIT. You will now be redirected back to Mechanical Turk.*

### **Screening Questions**

1) Are you age 18 or older?

- No
- Yes

[If yes, continue]

[If no] *We're sorry. To participate in this research study, you must be age 18 or older. If you are not automatically redirected back to Mechanical Turk, please click here.* [Exclude and redirect to MT]

2) Do you read and write English fluently?

- No
- Yes

[If yes, continue]

[If no] *We're sorry. To participate in this research study, you must be fluent in English. If you are not automatically redirected back to Mechanical Turk, please click here.* [Exclude and redirect to MT]

3) Is your primary residence in the United States?

- No
- Yes

[If yes, continue]

[If no] *We're sorry. To participate in this research study, your primary residence must be in the United States. If you are not automatically redirected back to Mechanical Turk, please click here.* [Exclude and redirect to MT]

### **Consent Page**

[Consent form]

### **Survey Questionnaire**

*You will be asked to watch a video advertisement (commercial) from Australia. The advertised product or brand may be unfamiliar to you. Please imagine that the advertised product is available in the United States.*

*During the commercial, a number of colored squares will appear on your computer screen around the video. Some of these squares may be red, and some of them may be blue. They will appear for a half second and then disappear. Over the course of the commercial, **please count how many squares you saw in EACH COLOR.***

*Please do your best to focus on the commercial, while also keeping an accurate count of the red and blue squares. You will be asked to answer some questions about the commercial afterward, and also indicate how many squares you counted in each color. Please make sure you are in a **quiet, distraction-free environment** (turn off any TV or music, minimize all windows open on your computer).*

4) To ensure that you understand these instructions, please explain them in your own words the box below:

---

[Video Ad (with or without distractions). After ad completes, survey automatically proceeds to next page.]

*Some people were exposed to a number of red and/or blue squares during the video, which they were asked to count. If you do not remember seeing any red squares or blue squares, you can enter 0 (zero) in the appropriate boxes below.*

5) How many **red** squares did you count during the video? Remember, 0 (zero) is a valid answer.  
\_\_\_\_\_

6) How many **blue** squares did you count during the video? Remember, 0 (zero) is a valid answer. \_\_\_\_\_

7) Please list every thought you remember having in relation to the commercial. Some of these thoughts may have been favorable toward the commercial. Some of them may have been unfavorable. Some thoughts may have been neutral (neither favorable nor unfavorable). List as many different thoughts as you can remember. Enter only one thought per box below.

*Note: If you were asked to count red and/or blue squares during the commercial, please **do not** list any thoughts you had in relation to this task. **Only list thoughts related to the commercial itself.***

*Enter only one thought per box below.*

[Eight boxes presented initially, with opportunity to add more, up to 20.]

8) For each of the thoughts you listed, please indicate whether this thought was (1) unfavorable toward the commercial; (2) neutral toward the commercial; (3) positive toward the commercial; or (4) irrelevant (unrelated) to the commercial.

*Note: Thoughts related to the commercial, but neither favorable nor unfavorable, should be coded as neutral. Thoughts not related to the commercial itself, including any thoughts about counting red and/or blue boxes, should be coded as irrelevant.*

Unfavorable	Neutral	Favorable	Irrelevant
-------------	---------	-----------	------------

*The next set of questions relate to the commercial you viewed. Please answer these questions to the best of your ability.*

9) What was the name of the brand being advertised in the commercial?

---

10) What was the product being advertised in this commercial?

- A) A bag for storing food in the freezer
- B) A bag for keeping food fresh in the refrigerator
- C) A bag, and marinade mix, for preparing chicken
- D) A bag of frozen chicken

11) How many kids were in this commercial?

- A) 1
- B) 2
- C) 3
- D) 4

12) What arguments were specifically used in the commercial to promote this product?

- A) Healthy
- B) Easy to prepare
- C) Fresh
- D) Juicy
- E) A and C
- F) B and D
- G) None of the above

13) What were the 3 steps the mother mentioned in this commercial?

- A) Cut chicken into small pieces, add mix to bag, add chicken to bag
- B) Add mix to bag, shake, roast in oven
- C) Roast chicken, place chicken in bag, store bag in refrigerator or freezer

14) When the mother put the chicken in the oven, it was:

- A) Still in the bag
- B) No longer in the bag

15) IF YOU WERE TO USE THIS TYPE OF PRODUCT IN THE FUTURE, and it was available in the U.S., how likely are you to choose THIS PARTICULAR BRAND?

1	2	3	4	5	6	7
Extremely Unlikely						Extremely Likely

16) I personally thought the BRAND featured in the commercial was:

1 Bad	2	3	4	5	6	7 Good
----------	---	---	---	---	---	-----------

17) I personally thought the BRAND featured in the commercial was:

1 Awful	2	3	4	5	6	7 Nice
------------	---	---	---	---	---	-----------

*Please indicate the extent to which you disagree or agree with the following statements.*

1 Strongly disagree	2 Moderately disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Moderately agree	7 Strongly agree
------------------------	--------------------------	------------------------	---------------------------------	---------------------	-----------------------	---------------------

18) The people in this commercial appear to be having fun

19) I find the people in this commercial to be good looking

20) I find this commercial appealing

21) [Trip question] I must choose moderately disagree for this item

22) People in this commercial are like people I know

23) This commercial is a realistic reflection of how people like me act

24) This commercial cannot be trusted

25) I would like to be like people in this commercial

*The next set of questions relate to how you felt while watching the commercial.*

26) How distracting did you find the colored squares in the background while the commercial was playing?

1 Not at all distracting	2	3	4	5	6	7 Extremely distracting
-----------------------------	---	---	---	---	---	----------------------------

Please indicate the extent to which you disagree or agree with each statement about how you felt while watching the commercial.

1	2	3	4	5	6	7
Strongly disagree	Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree

- 27) I was not able to give the commercial my full attention
- 28) I found myself distracted while watching the commercial
- 29) I was able to concentrate on the commercial
- 30) My attention was drawn away from the commercial
- 31) I could not focus on the commercial
- 32) I could not follow what was going on in the commercial
- 33) I was able to focus on the commercial the entire time
- 34) I had trouble following along with the commercial
- 35) I am being instructed to choose moderately agree
- 36) I was able to follow the arguments the commercial put forth
- 37) Have you seen this commercial before today?
  - Yes
  - No
- 38) Did you experience any trouble viewing this video? (Check all that apply.)

Note: If you were asked to count red and/or blue squares during the video, do not list this as “trouble.”

- No
- Yes, it kept stopping and starting, but I got all the way through the video
- Yes, it froze in the middle and wouldn't start up again
- Yes, it wouldn't play at all
- Other \_\_\_\_\_



*Please answer a few questions about yourself and your background. These questions are optional. You may decline to answer any question that you do not feel comfortable answering.*

39) What is your sex?

- Male
- Female
- I'd rather not say

40) What is your age? \_\_\_\_\_

41) Are you Hispanic, Latino, or of Spanish origin? (Check all that apply)

- No, not Hispanic, Latino, or of Spanish origin
- Yes, Mexican, Mexican American, or Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, other Hispanic or Latino (please specify) \_\_\_\_\_

42) What is your race? (Check all that apply)

- White or Caucasian
- Black or African American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- Other (please specify) \_\_\_\_\_

43) What is the highest level of education you have completed?

- Less than high school education
- High school diploma
- Some college, no degree
- Two-year/Associate's degree
- Four-year/Bachelor's degree
- Some graduate education, no degree
- Master's degree (examples: M.A., M.S., M.B.A., M.F.A.)
- Graduate or professional degree (examples: M.D., J.D., Ph.D.)
- I'd rather not say

44) Are you currently a student, or will you be a student in fall 2011? (Please select the answer that best represents your current status.)

- No
- Yes, in high school or a GED program
- Yes, in a vocational or technical school
- Yes, in a two-year college
- Yes, in a four-year college
- Yes, in a graduate or professional degree program
- Yes, in non-degree coursework or a certificate program

45) Can your parents (or anyone else) claim you as a dependent on their tax return? (If you are a full-time college student, the answer is most likely yes.)

- No, no one else can claim me as a dependent
- Yes, my parents or someone else can claim me as a dependent

46) What is your annual household income? (If you're not sure, your best guess is fine.)

- Less than \$15,000
- \$15,000 to less than \$30,000
- \$30,000 to less than \$50,000
- \$50,000 to less than \$75,000
- \$75,000 to less than \$100,000
- \$100,000 to less than \$150,000
- \$150,000 to less than \$250,000
- \$250,000 or more

47) How many people in your household are dependent on this income? (Include yourself as 1 person.) \_\_\_\_\_

48) What state do you live in? [Select from menu]

49) Anything else you want to share?

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**Debriefing Page**

[Debriefing form]

### Pilot Study 3

*This survey is part of a dissertation research project being conducted by a graduate student in psychology at Claremont Graduate University in California. This is an academic research study, NOT a marketing survey.*

*You are eligible to participate if:*

- You are at least 18 years old*
- Your location is in the U.S.*
- You are able to read and write fluently in English*
- Your MTurk approval rating is at least 95%*
- You have not previously participated in this survey (under a different HIT)*

*The entire survey should take you no more than 2-3 minutes.*

*In order for your work to be approved, you **MUST** answer the question following the ad and click **Submit Survey**. If your work is approved, you will receive \$0.10 (ten cents) for completing this HIT.*

*If you wish to participate, click **Accept HIT**.*

**Instructions:** *Please examine this print ad for around 30 seconds and form an impression of it.*

[Print ad displayed]

1) How convincing did you find this ad?

1	2	3	4	5	6	7
Not at all convincing	Slightly convincing	Somewhat convincing	Fairly convincing	Convincing	Very convincing	Extremely convincing

*Thank you for your participation!*

## Main Study

### **Mechanical Turk Preview Text**

[The following text was displayed to individuals who chose to preview the HIT, before accepting the HIT.]

*This survey is part of a dissertation research project being conducted by a graduate student in psychology at Claremont Graduate University in California. This is an academic research study, NOT a marketing survey.*

*Part of this study looks at people's ability to do two things at once. For this reason, it is **EXTREMELY IMPORTANT** that you are in a **quiet, distraction-free** environment while completing this HIT. Please take a moment to **turn off any TVs or music, minimize any other windows you might have open on your computer, and turn off email alerts**. Once you begin, you will only have **60 minutes** to complete this HIT, so it is very important that you not shift your attention elsewhere.*

### **AM I ELIGIBLE?**

*You are NOT eligible to participate if:*

- *You are younger than 18 years old*
- *Your location is outside the United States*
- *You are not able to read and write fluently in English*
- *Your MTurk approval rating is less than 95%*
- *You previously participated in any of the following HITs: "Survey: Opinions About Advertising," "Survey: How People Respond to Advertising," or "Survey: Evaluate an Advertisement"*
- *You have taken a previous version of this survey with the same title*

*If you are not sure whether you completed one of the HITs listed above and wish to participate, please continue reading the instructions on this page. After you click "Accept HIT," the survey will let you know if you are not eligible.*

### **WHAT DO I HAVE TO DO?**

- 1) *You will be asked to look at a print advertisement and answer some questions about it. You will then receive some feedback. Please read this feedback before continuing.*
- 2) *Next, you will be asked to watch a brief video advertisement (commercial). You may be asked to complete another task while watching the video.*

- 3) Finally, you will be asked a series of questions about the video and your perceptions of advertising in general, as well as some questions about your background. Note: the researcher has **NO AFFILIATION** with the brands or products shown in these ads, or with the advertising agency. Please give your honest opinions.
- 4) Please note that there are a few questions intended to trip up “bots” and people who are not paying attention. These “trip” questions will **tell you how to respond** (for example, “please ignore this statement and instead select option A”), so be sure to read **ALL** instructions and questions. If you get any of these questions wrong, your work will be rejected.
- 5) The entire survey should take you around 15 to 25 minutes. Once you accept, you can return the HIT at any time, but you will not be able to start the survey over again.

### **WILL MY WORK BE APPROVED?**

In order for your work to be approved, you **MUST**:

- 1) Answer all required questions and click “**SUBMIT SURVEY**” at the end of the survey.
- 2) Correctly answer all “trip” questions designed to verify that you are paying attention, and are not an automated computer script or answering entirely at random.

If your work is approved, you will receive **\$0.51 (fifty-one cents)** for completing this HIT.

The HIT has been set to automatically approve every 24 hours. If we do not review your work sooner, the longest you should have to wait is one day.

### **TECHNICAL REQUIREMENTS**

Because this survey includes video, **you must have JavaScript and Flash enabled on your browser, and your computer’s sound must be turned on.** Please check now, before you click “Accept HIT.”

[After accepting HIT, if participated in any of three pilot studies] We’re sorry. Because you completed one of our previous HITs (‘Survey: Opinions About Advertising,’ ‘Survey: How People Respond to Advertising,’ or ‘Survey: Evaluate an Advertisement’) you are not eligible for this HIT. You will now be redirected back to Mechanical Turk.

### **Screening Questions**

1) Are you age 18 or older?

- No
- Yes

[If yes, continue]

[If no] *We're sorry. To participate in this research study, you must be age 18 or older. If you are not automatically redirected back to Mechanical Turk, please click here.* [Exclude and redirect to MT]

2) Do you read and write English fluently?

- No
- Yes

[If yes, continue]

[If no] *We're sorry. To participate in this research study, you must be fluent in English. If you are not automatically redirected back to Mechanical Turk, please click here.* [Exclude and redirect to MT]

3) Is your primary residence in the United States?

- No
- Yes

[If yes, continue]

[If no] *We're sorry. To participate in this research study, your primary residence must be in the United States. If you are not automatically redirected back to Mechanical Turk, please click here.* [Exclude and redirect to MT]

### **Consent Page**

[Consent form]

### **Survey Questionnaire**

*The first part of this survey relates to print advertisements. After clicking 'Continue,' you will have 30 seconds to examine a print ad and form an impression of it.*

[Print ad displays for 30 seconds before automatically progressing to next page]

4) How convincing did you find the ad?

1	2	3	4	5	6	7
Not at all convincing	Slightly convincing	Somewhat convincing	Fairly convincing	Convincing	Very convincing	Extremely convincing

5) What two aspects of the ad were most important in determining how convincing you found it?

- a) \_\_\_\_\_
- b) \_\_\_\_\_

Control Condition Only

**Did you know...**

- *Strawberries are the number one most popular berry in the U.S., followed by blueberries.*
- *By contrasting in color with their background, berries are more attractive to animals, making them more likely to be eaten and have their seeds dispersed.*
- *Strawberries are not true berries. They are actually members of the rose family.*
- *Strawberry shortcake is based on a Native American tradition in which strawberries, (known as heart-seed berries because of their shape) were pounded into cornmeal bread.*
- *On average, there are 200 tiny seeds in every strawberry. If all the strawberries produced in California this year were laid berry to berry, they'd wrap around the world 15 times.*
- *At a symposium on berry health benefits, reports showed consumption of blueberries may help prevent the mental decline occurring in Alzheimer's disease and other aging-related conditions.*
- *The blue paint used to paint woodwork in Shaker houses was made from sage blossoms, indigo, and blueberry skins, mixed in milk.*

*Here is the ad again, in case you want to take a second look.*

[Print ad]

*Let's proceed to the second part of this study, which pertains to video forms of advertising.*

Vulnerability Condition Only

*You said you found the ad \_\_\_ [insert response from #4 in bold: **not at all** to **extremely convincing**] ([numerical value] on a scale from 1 to 7).*

*You may believe advertising messages affect other people, but not you. However, if you found the ad at least somewhat convincing (3), that shows **you let the advertiser manipulate you** with some very common persuasive tactics. The ad was quite subtle in its*

*use of these tactics, so if you weren't paying close attention, they probably slipped right past your radar.*

### ***Fresh! Natural!***

*Food advertisers often play up the idea of freshness, by talking a lot about natural, locally grown ingredients. This ad is no exception. The ad twice mentions the word **fresh**: "taste the difference fresh can make" and "fresh-picked berries." The ad also notes that the strawberries are "hand-cut" and "picked at the peak of the season." The salad dressing is "all-natural." Taken together, these statements evoke an image of fruits and vegetables fresh from the farm, when in fact, this salad is from a fast-food establishment!*

### ***Limited time offer!***

*In the text at the top, the ad implores: "Try it today, because our fresh-picked berries only last as long as summer!" In the bottom left corner, in small print, it says "For a limited time only." This tactic is known as a **scarcity appeal**. The advertiser is implying that the product is in short supply, and if you don't hurry, you will miss out on your chance to try this amazing salad...forever! Maybe this is true, maybe not. The advertiser is more than happy to tell you time is running out, if that's what it takes to get you in the door.*

*So, did you notice the ad's use of these persuasive tactics? Let's take a look at your answer to the second question:*

*What two aspects of the ad were most important in determining how convincing you found it?*

- [Response to 5a]
- [Response to 5b]

*If you didn't notice the persuasive tactics described above, then you left yourself defenseless against manipulation by crafty advertisers. **Don't let yourself be fooled!***

*Here is the ad again. Now that you've learned to recognize some of the persuasive tactics advertisers frequently use, how convincing do you find the ad?*

[Print ad]

*Let's proceed to the second part of this study, which pertains to video forms of advertising.*

*No Distraction Condition Only*



*You will now be asked to watch a video advertisement (commercial) from Australia. The advertised product or brand may be unfamiliar to you. Please imagine that the advertised product is available in the United States.*

*Please do your best to focus on the commercial. After you finish watching, you will be asked a series of questions about your perceptions of the commercial.*

*Before you click “Continue,” please make sure you are in a **quiet, distraction-free** environment (turn off any TV or music, minimize all windows open on your computer).*

*Distraction Condition Only*

*You will now be asked to watch a video advertisement (commercial) from Australia. The advertised product or brand may be unfamiliar to you. Please imagine that the advertised product is available in the United States.*

*During the commercial, a number of red squares will appear on your computer screen around the video. They will appear for a half second and then disappear. **Please count how many squares you see.***

*Please do your best to focus on the commercial, while also keeping an accurate count of the red squares. After you finish watching, you will be asked a series of questions about your perceptions of the commercial, and also asked to indicate how many red squares you counted.*

*Before you click “Continue,” please make sure you are in a **quiet, distraction-free** environment (turn off any TV or music, minimize all windows open on your computer).*

*All Conditions*

[Video Ad (with or without distractions). After ad completes, survey automatically proceeds to next page.]

*You will now be asked to answer a series of questions about the VIDEO AD (commercial) you just watched, and your experience while watching this ad.*

6) Some people were asked to keep count of a number red squares, which flashed on the screen outside the video frame. How many red squares did you count during the commercial? If you do not remember seeing any red squares, you can enter 0 (zero) in the box below.

---

7) Please list every thought you remember having in relation to the commercial. Some of these thoughts may have been favorable toward the commercial. Some of them may have been unfavorable. List as many different thoughts as you can remember.

*Note: If you were asked to count red squares during the commercial, please **do not** list any thoughts you had in relation to this task. **Only list thoughts related to the commercial itself.** Enter only one thought per box below.*

[Eight boxes presented initially, with opportunity to add more, up to 20.]

8) For each of the thoughts you listed, please indicate whether this thought was (1) unfavorable toward the commercial; (2) neutral toward the commercial; (3) favorable toward the commercial; or (4) irrelevant (unrelated) to the commercial.

*Note: Thoughts related to the commercial, but neither favorable nor unfavorable, should be rated as **neutral**. Thoughts not related to the commercial itself, including any thoughts about counting red squares, should be rated as **irrelevant**. If you listed any thoughts related to the characters' accents, please rate these as **irrelevant**.*

Unfavorable	Neutral	Favorable	Irrelevant
-------------	---------	-----------	------------

*The next set of questions relate to your perceptions of THIS VIDEO AD (commercial). Please answer these questions to the best of your ability. Remember, the researcher has NO AFFILIATION with the brand or product shown in this commercial, or with the advertising agency. Please give your honest opinions.*

9) What was the commercial for? (Please describe in your own words.)

\_\_\_\_\_

10) I personally thought the BRAND featured in the commercial was \_\_\_\_.

1 Bad	2	3	4	5	6	7 Good
----------	---	---	---	---	---	-----------

11) I personally thought the BRAND featured in the commercial was \_\_\_\_.

1 Pleasant	2	3	4	5	6	7 Unpleasant
---------------	---	---	---	---	---	-----------------

12) I personally thought the BRAND featured in the commercial was \_\_\_\_.

1 Low Quality	2	3	4	5	6	7 High Quality
---------------------	---	---	---	---	---	----------------------

13) If you were to use this type of product in the future, and it was available in the U.S., how likely are you to choose THIS PARTICULAR BRAND?

1 Extremely Unlikely	2	3	4	5	6	7 Extremely Likely
----------------------------	---	---	---	---	---	--------------------------

14) I found this commercial \_\_\_.

1 Persuasive	2	3	4	5	6	7 Unpersuasive
-----------------	---	---	---	---	---	-------------------

15) I found this commercial \_\_\_.

1 Convincing	2	3	4	5	6	7 Unconvincing
-----------------	---	---	---	---	---	-------------------

16) I found this commercial \_\_\_.

1 Not Influential	2	3	4	5	6	7 Influential
-------------------------	---	---	---	---	---	------------------

*The following questions relate to how you personally felt about THIS VIDEO AD (commercial). Please indicate the extent to which you disagree or agree with the following statements.*

1 Strongly disagree	2 Moderately disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Moderately agree	7 Strongly agree
---------------------------	-----------------------------	---------------------------	---------------------------------------	------------------------	--------------------------	------------------------

17) I am suspicious of what the advertiser was trying to do in this commercial.

18) This commercial seems realistic.

19) It would be nice to live like the characters in this commercial.

20) The characters in this commercial are similar to me.

21) The characters in this commercial do things I would like to do.

22) The characters in this commercial remind me of people I know.

- 23) This commercial is an accurate reflection of real life.
- 24) I would like to be like the characters portrayed in this commercial.
- 25) It would be nice to be as good looking as people in this commercial.
- 26) [Trip question] This commercial is an ad, but please ignore this statement and instead choose the moderately disagree option.
- 27) The characters in this commercial are like my family members.
- 28) This commercial can be trusted.
- 29) I know people similar to those portrayed in this commercial.
- 30) This commercial is a realistic reflection of how people behave.
- 31) This commercial is misleading.
- 32) The characters in this commercial are like my friends.
- 33) I would like to look like people in this commercial.
- 34) This commercial accurately reflects how people like me act.

*The following questions relate to how you personally felt about THIS VIDEO AD (commercial).*

35) I found this commercial \_\_\_\_.

1	2	3	4	5	6	7
Appealing						Unappealing

36) I found the characters in this commercial to be \_\_\_\_.

1	2	3	4	5	6	7
Unattractive						Attractive

37) I found the characters in this commercial to be \_\_\_\_.

1	2	3	4	5	6	7
Bored						Having Fun

38) I found the characters in this commercial to be \_\_\_\_.

1 Happy	2	3	4	5	6	7 Unhappy
------------	---	---	---	---	---	--------------

39) The characters in this commercial seem like they would be \_\_\_\_ by their peers.

1 Disliked	2	3	4	5	6	7 Well-Liked
---------------	---	---	---	---	---	-----------------

*The following questions relate to how you personally felt about THIS VIDEO AD (commercial). Please indicate the extent to which you disagree or agree with the following statements.*

1 Strongly disagree	2 Moderately disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Moderately agree	7 Strongly agree
------------------------	--------------------------	------------------------	---------------------------------	---------------------	-----------------------	---------------------

40) The way this commercial tries to persuade people seems acceptable to me.

41) The commercial tried to manipulate the audience in ways that I don't like.

42) This commercial seemed to be trying to inappropriately control the consumer.

43) The commercial tried to be persuasive without being overly manipulative.

44) I found this commercial to be \_\_\_\_.

1 Fair	2	3	4	5	6	7 Unfair
-----------	---	---	---	---	---	-------------

45) I found this commercial to be \_\_\_\_.

1 Sneaky	2	3	4	5	6	7 Straight-forward
-------------	---	---	---	---	---	-----------------------

The next set of questions relate to how you felt while watching THIS VIDEO AD (commercial). Please indicate the extent to which you disagree or agree with each statement.

1	2	3	4	5	6	7
Strongly disagree	Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree

46) I was not able to give the commercial my full attention.

47) I was able to concentrate on the commercial

48) I was able to focus on the commercial the entire time.

49) I had trouble following along with the commercial.

50) Have you ever seen either the PRINT AD or VIDEO AD (commercial) before today?

- No
- Yes, print ad
- Yes, video ad (commercial)
- Yes, both ads

51) Do you have any dietary restrictions that may have influenced your responses to either of the two ads you saw (print ad or video ad)? (Check all that apply, but ONLY if relevant to the ads you saw.)

- No dietary restrictions relevant to the ads I saw
- Vegetarian
- Vegan
- Gluten-free diet
- Nut allergy
- Other (please explain) \_\_\_\_\_

52) Did you experience any trouble viewing the video ad? (Check all that apply.)

- No
- Yes, it kept stopping and starting, but I got all the way through the video
- Yes, it froze in the middle and wouldn't start up again
- Yes, it wouldn't play at all
- Other (please explain) \_\_\_\_\_

[Wording for questions 53-57 dependent on order condition (whether self or other-oriented questions come first)]

53) How much do you think the VIDEO AD (commercial) you just watched affected YOUR [would affect MOST PEOPLE’S] opinion[s] about the product?

1 Not at all	2	3	4 Somewhat	5	6	7 A great deal
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*Moving beyond the video ad you just watched, the next set of questions relates to your perceptions of how advertisements and other media messages affect YOU [PEOPLE IN GENERAL].*

1 Strongly disagree	2 Moderately disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Moderately agree	7 Strongly agree
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54) Media messages influence the way I [people] think about the world.

55) My [People’s] purchasing decisions are often influenced by what I [they] see in ads.

56) My [People’s] behavior is influenced by what I [they] see in ads.

57) I don’t think advertising affects me [people] much at all.

*Please indicate the extent to which you disagree or agree with each of the following statements about yourself.*

1 Strongly disagree	2 Moderately disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Moderately agree	7 Strongly agree
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58) I am strongly committed to my own beliefs.

59) My own beliefs are very clear.

60) [Trip question] My beliefs are correct, but please ignore this statement and instead choose the slightly disagree option.

61) I find my opinions to be changeable.

62) It could be said that I am likely to shift my attitudes.

63) I often vary or alter my views when I discover new information.

64) After forming an impression of something, it's often hard for me to modify that impression.

65) My ideas are very stable and remain the same over time.

66) I have often changed my opinions.

[Wording for questions 67-71 dependent on order condition (whether self or other-oriented questions come first) - repeat items 53-57 with alternate wording.]

*Please answer a few questions about yourself and your background.*

72) How familiar would you say you are with the concept of MEDIA LITERACY?

- I don't know what media literacy is
- Not at all familiar
- A little bit familiar
- Moderately familiar
- Quite familiar
- Extremely familiar

[If 'I don't know what media literacy is' or 'not at all', skip to question 76.]

73) You indicated you are at least a little bit familiar with the concept of media literacy. What does media literacy mean to you?

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74) Have you ever had any formal education or training in media literacy?

- No
- I've read or learned about media literacy on my own
- I learned about media literacy at home when I was growing up
- I've had formal education or training in media literacy

[If 'I've had formal education or training in media literacy, proceed to question 75. Otherwise, skip to question 76.]



75) Which of the following describes your training in media literacy? (Check all that apply)

- I learned about media literacy outside of school (example: at camp)
- I learned about media literacy in elementary school
- I learned about media literacy in junior high/high school
- I learned about media literacy in college/post-secondary education
- I learned about media literacy as part of my professional development (please explain) \_\_\_\_\_
- I teach media literacy or am otherwise involved in media literacy education (please explain) \_\_\_\_\_
- Other (please explain) \_\_\_\_\_

*Please answer a few questions about yourself and your background. These questions are optional. You may decline to answer any question that you do not feel comfortable answering.*

76) What is your sex?

- Male
- Female
- I'd rather not say

77) What is your age? \_\_\_\_\_

78) Are you Hispanic, Latino, or of Spanish origin? (Check all that apply)

- No, not Hispanic, Latino, or of Spanish origin
- Yes, Mexican, Mexican American, or Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, other Hispanic or Latino (please specify) \_\_\_\_\_

79) What is your race? (Check all that apply)

- White or Caucasian
- Black or African American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- Other (please specify) \_\_\_\_\_

80) What is the highest level of education you have completed?

- Less than high school education
- High school diploma
- Some college, no degree
- Two-year/Associate's degree
- Four-year/Bachelor's degree

- Some graduate education, no degree
- Master's degree (examples: M.A., M.S., M.B.A., M.F.A.)
- Graduate or professional degree (examples: M.D., J.D., Ph.D.)
- I'd rather not say

81) Are you currently a student, or will you be a student in fall 2011? (Please select the answer that best represents your current status.)

- No
- Yes, in high school or a GED program
- Yes, in a vocational or technical school
- Yes, in a two-year college
- Yes, in a four-year college
- Yes, in a graduate or professional degree program
- Yes, in non-degree coursework or a certificate program

82) Can your parents (or anyone else) claim you as a dependent on their tax return? (If you are a full-time college student, the answer is most likely yes.)

- No, no one else can claim me as a dependent
- Yes, my parents or someone else can claim me as a dependent

83) What is your annual household income? (If you're not sure, your best guess is fine.)

- Less than \$15,000
- \$15,000 to less than \$30,000
- \$30,000 to less than \$50,000
- \$50,000 to less than \$75,000
- \$75,000 to less than \$100,000
- \$100,000 to less than \$150,000
- \$150,000 to less than \$250,000
- \$250,000 or more

84) How many people in your household are dependent on this income? (Include yourself as 1 person.) \_\_\_\_\_

85) What state do you live in? [Select from menu]

86) Anything else you want to share?

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**Debriefing Page**

[Debriefing form]

## APPENDIX D: FINAL MEASURES

### Pilot Study 1

#### Strength (range: 0-1<sup>8</sup>)

- $(\# \text{ positive thoughts}) / (\# \text{ positive thoughts} + \# \text{ negative thoughts})$

#### Persuasiveness (6-item scale; $\alpha = .89$ ; range: 1-7)

- IF YOU WERE TO USE THIS TYPE OF PRODUCT IN THE FUTURE, and it was available in the U.S., how likely are you to choose THIS PARTICULAR BRAND?
- I personally thought the BRAND featured in the commercial was Bad/Good
- I personally thought the BRAND featured in the commercial was Low Quality/High Quality
- I personally thought the COMMERCIAL ITSELF was Bad/Good
- I personally thought the COMMERCIAL ITSELF was Pleasant/Unpleasant (reversed)
- I personally thought the COMMERCIAL ITSELF was Awful/Nice

#### Use of emotional techniques (10-item scale; $\alpha = .94$ ; range: 1-7)

- This ad is designed to play on the viewer's emotions
- A goal of this ad is to bring up positive memories
- One purpose of this ad is to connect with the viewer's values
- This ad seeks to make the viewer feel like they belong
- This ad tries to persuade viewers by making them emotional
- This ad is intended to bring up strong feelings in the viewer
- This ad is intended to form an emotional bond with the viewer
- I found this ad Unemotional/Emotional
- I found this ad Moving/Not Moving (reversed)
- I found this ad Touching/Not Touching (reversed)

#### Use of informational techniques (7-item scale; $\alpha = .94$ ; range: 1-7)

- This ad helps me weigh the pros and cons of the product
- This ad provides information about the product
- This ad provides specific reasons to think about when deciding whether to buy this product
- This ad focuses on concrete features of the product
- This ad provides useful information about the product that I can think about

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<sup>8</sup> Ranges listed are possible ranges for each variable, not observed ranges.

- This ad helps the viewer think about the costs and benefits of this product
- This ad tries to persuade viewers by providing information

## **Pilot Study 2**

### **Recall**

Brand recall (1 item; incorrect = 0, correct = 1)

- What was the name of the brand being advertised in the commercial?

Factual recall (5 multiple choice items; at least one incorrect = 0, all five correct = 1)

- What was the product being advertised in this commercial?
- How many kids were in this commercial?
- What arguments were specifically used in the commercial to promote this product?
- What were the three steps the mother mentioned in this commercial?
- When the mother put the chicken in the oven, it was \_\_\_ [still in the bag or no longer in the bag]

Combined recall (sum of brand recall and factual recall items; range: 0-6)

- # of brand recall and factual recall items answered correctly

### **Accuracy**

No Discrepancy - Red (1 item; any discrepancy = 0, accurate count = 1)

- How many red squares did you count during the video?

Within One - Red (1 item; discrepancy of two or more = 0, accurate within one = 1)

- How many red squares did you count during the video?

Absolute Discrepancy

- Red: | Reported # red stimuli - actual # red stimuli |
- Blue: | Reported # blue stimuli - actual # blue stimuli |

## **Distractedness**

### Total Relevant Thoughts (range: 0-20)

- # favorable thoughts + # unfavorable thoughts

### Subjective Distractedness (8-item scale; $\alpha = .96$ ; range: 1-7)

- I was not able to give the ad my full attention
- I found myself distracted while watching the ad
- I was able to concentrate on the ad (reversed)
- My attention was drawn away from the ad
- I could not focus on the ad
- I could not follow what was going on in the ad
- I was able to focus on the ad the entire time (reversed)
- I had trouble following along with the ad

## **Main Study**

### Thought Valence (range: -20 to 20)

- (# favorable thoughts) - (# unfavorable thoughts)

### Persuasiveness (6-item scale; $\alpha = .89$ , range: 1-7)

- IF YOU WERE TO USE THIS TYPE OF PRODUCT IN THE FUTURE, and it was available in the U.S., how likely are you to choose THIS PARTICULAR BRAND?
- I personally thought the BRAND featured in the commercial was Bad/Good
- I personally thought the BRAND featured in the commercial was Low Quality/High Quality
- I found this commercial Persuasive/Unpersuasive (reversed)
- I found this commercial Convincing/Unconvincing (reversed)
- I found this commercial Not Influential/Influential

### Distrust (6-item scale; $\alpha = .90$ ; range: 1-7)

- I am suspicious of what the advertiser was trying to do in this commercial
- This commercial is misleading
- The commercial tried to manipulate the audience in ways that I don't like
- This commercial seemed to be trying to inappropriately control the consumer
- I found this commercial to be Fair/Unfair
- I found this commercial to be Sneaky/Straightforward (reversed)

Realism (3-item scale;  $\alpha = .86$ ; range: 1-7)

- This commercial seems realistic
- This commercial is an accurate reflection of real life
- This commercial is a realistic reflection of how people behave

Similarity (6-item scale;  $\alpha = .93$ ; range: 1-7)

- The characters in this commercial remind me of people I know
- The characters in this commercial are like my family members
- I know people similar to those portrayed in this commercial
- The characters in this commercial are similar to me
- The characters in this commercial are like my friends
- This commercial accurately reflects how people like me act

Identification (3-item scale;  $\alpha = .87$ ; range: 1-7)

- I would like to be like the characters portrayed in this commercial
- The characters in this commercial do things I would like to do
- It would be nice to live like the characters in this commercial

Attractiveness (3-item scale;  $\alpha = .86$ ; range: 1-7)

- I would like to look like people in this commercial
- It would be nice to be as good looking as people in this commercial
- I found the characters in this commercial to be Unattractive/Attractive

Persuasibility (6-item scale;  $\alpha = .82$ ; range: 1-7)

- I find my opinions to be changeable
- It could be said that I am likely to shift my attitudes
- I often vary or alter my views when I discover new information
- After forming an impression of something, it's often hard for me to modify that impression (reversed)
- My ideas are very stable and remain the same over time (reversed)
- I have often changed my opinions

Ad-Specific Third-Person Effects (single difference-score; range 0-6)

- (“Ad Influence: Others” rating) - (“Ad Influence: Self” rating)

Ad Influence: Self (1 item; range: 1-7)

- How much do you think the video ad (commercial) you just watched affected YOUR opinion about the product?

Ad Influence: Others (1 item; range: 1-7)

- How much do you think the video ad (commercial) you just watched would affect most people’s opinions about the product?

General Third-Person Effects (scale constructed from 4 difference-scores;  $\alpha = .85$ ; range 0-6)

- For each “General Media Influence” item: (“Others” rating) - (“Self” rating)

General Media Influence: Self (4 items; range: 1-7)

- Media messages influence the way I think about the world
- My purchasing decisions are often influenced by what I see in ads
- My behavior is influenced by what I see in ads
- I don’t think advertising affects me much at all (reversed)

General Media Influence: Others (4 items; range: 1-7)

- Media messages influence the way people think about the world
- People’s purchasing decisions are often influenced by what they see in ads
- People’s behavior is influenced by what they see in ads
- I don’t think advertising affects people much at all (reversed)

Subjective Distractedness (4 items;  $\alpha = .90$  ; range: 1-7)

- I was not able to give the commercial my full attention
- I was able to concentrate on the commercial (reversed)
- I was able to focus on the commercial the entire time (reversed)
- I had trouble following along with the commercial

Total Relevant Thoughts (range: 0-20)

- (# favorable thoughts) + (# unfavorable thoughts)