THE INTERPLAY OF WORLDVIEWS AND HEURISTICS IN THE PROCESSING OF PERSUASIVE MESSAGES

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ABSTRACT

ROBERT GERALD MAGEE: The interplay of worldviews and heuristics in the processing of persuasive messages
(Under the direction of Sriram Kalyanaraman)

A person's worldview might moderate the way a persuasive message is processed, sometimes in the opposite direction of that intended by communicators. This dissertation explored the possibility that a worldview can influence the way a persuasive message is perceived.

Building on the construct of worldview, the heuristic-systematic model of persuasion, and terror management theory, this dissertation examined the question in a between-participants post-test only 2 (expertise cue) X 2 (argument quality) X 2 (mortality salience) X a relativist worldview (a measured variable) experiment ($N = 149$). Some participants in the experiment were reminded of their eventual death, while others were asked to think of watching television. Then, participants' tendency toward a relativist or traditional worldview was assessed. Participants viewed mock ads that featured either strong or weak arguments and had either an expertise cue or no cue at all, after which they rated the ads in terms of their attitudes toward the ad (A_{ad}), the attitudes toward the brand (A_{brand}), and behavioral intentions.

Worldview had a main effect on global evaluations of the ads, such that participants who tended toward a relativist worldview had lower evaluation of the ads and lower behavioral intentions. Mortality salience was found to moderate participants' worldview, presumably making their worldview more accessible in evaluating the ads. This dissertation

also found separate main effects for worldview and argument quality on attitude toward the ad and attitude toward the brand, respectively. The implications for the heuristic-systematic model and terror management theory are discussed.

To Sandra,

My wife, best friend, and strongest encourager.

Every day I spend with you, you amaze me even more.

Thank you for tirelessly and selflessly supporting me.
Thank you for believing in me, for encouraging me, for pushing steadfast, firmly, gently.

You lift me with your smile, with compassion,
You lead me forward with your love of life, with the joy of discovery.
You ground me, reminding me of who I am and of your love for me.

I want to live up to your vision of me,
to become the man that your eyes see.

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Chapter I

Introduction and Theory

Robert, Sandra, and Sara were reading magazines at a coffee shop one morning, and Robert noticed an ad for a new artificial sweetener. The ad touted the product as having superior taste and health benefits and being especially designed for gourmet cooking. The ad also featured a picture of Martha Stewart, widely reputed as an expert in home and garden matters, and said that she designed the sweetener based on her extensive experience. The product was also tested rigorously in her laboratories.

Robert was persuaded by the ad. "Someone with as much knowledge and experience as Martha Stewart must know what she is talking about," he said. "That's how progress is made, through innovation and testing."

Robert was generally optimistic about the advances of science and believed that progress through science and technology was good. He usually took seriously the advice of experts in most areas of his life, taking advantage of their objective and usually unbiased perspective.

Sandra, on the other hand, was more skeptical, saying that she would need to try the sweetener first-hand before being convinced.

"How do you know that what she's saying is really true?" Sandra asked. "Of course, she says it's superior. She's selling it."

Sandra placed as much stock in her own opinions as she did in experts' opinions, which, in her mind, is what they were: opinions, not facts. No one could be truly objective.

Sara looked up from reading an article about Patsy Cline, the promising country singer whose life was cut short in a plane crash.

"You're right," she said. "How can we know if anything is real? I wouldn't even try it."

Sara shared Sandra's conviction about the uncertainty of expert knowledge, but today she seemed more adamant.

"Laboratory studies are so biased anyways," Sara said. "First, saccharine was supposed to be a healthy alternative, until reports of cancer in laboratory animals surfaced. Then, aspartame was promoted as being better, but it has some kind of vague warning about phenylketonuria, whatever that is. I'm sure it's just a matter of time before harmful side effects are discovered for this product, too."

Her friends returned to their magazines, but Sara continued. "Cellphones are convenient, but you can get a brain tumor; modern agriculture feeds millions but ravages the environment; margarine was better than butter, now it's worse than butter. How can we really know anything anymore?"

After a pause, Sara ordered another mocha latte, her favorite, but this time with whole milk and extra cinnamon.

Robert, Sandra, and Sara responded differently to the same persuasive message, and their responses varied according to the fundamental assumptions they made about life in general. Robert believed that society was moving forward to a better and brighter future, and

that scientific development was an important reason for that progress. It is possible for experts, and people in general, to be unbiased and objective. Robert was more persuaded by the ad because the message, with its strong assertion of superior results claims of laboratory testing and expert experience, was in line with his assumptions about life.

Sandra, on the other hand, did not hold Robert's conviction that experts are necessarily better informed. She realized that some reputed experts could be mistaken and others could be biased by personal concerns such as profit. The ad's claims of Martha Stewart's authoritative expertise, therefore, did not ring true to Sandra.

Sara tended to share Sandra's perspective regarding the impossibility of certainty or objective and value-free knowledge. However, Sara had just read about the untimely death of a singer, and that article had prompted anxious concerns about her mortality. The anxiety caused her nonconsciously to defend her worldview, her understanding of how the world is, and because the influence of her worldview had been heightened, it had a greater influence over the way she perceived the ad.

Sara's worldview was similar to Sandra's, but anxiety over the possibility of death caused Sara's worldview to have greater influence in her response to the ad. Sara resorted to her habitual patterns of thought about the world and habitual patterns of behavior, ordering another of her favorite coffee beverage. Perhaps Sara's worldview was more available at the time because she needed a buffer against anxiety, or it could be that the anxiety just led her to engage more in her learned patterns of behavior and thought. Regardless of the reason, though, the increased availability of Sara's worldview led her to process the ad differently than either Sandra or Robert.

A persuasive media message can be perceived in different ways, depending, in part, on the worldview, or basic assumptions about reality, of the person receiving the message. In addition, situational factors, such as a reminder of one's mortality, can make a person's worldview more available and applicable for influencing how a message is interpreted. The image of Martha Stewart was intended to activate an implicit belief that experts like Martha Stewart can be trusted. However, among readers like Sandra and Sara, whose relativist worldview included a general distrust of experts, the image did not have the intended effect.

Persuasion research has been a vibrant arena of study since the 1950s, particularly in its relation to attitude research (Johnson, Maio, & Smith-McLallen, 2005). Persuasion has received substantial research attention in such diverse disciplines as communication (e.g., Dillard & Pfau, 2002; O'Keefe, 2002), psychology (e.g., Chaiken & Trope, 1999; Petty & Cacioppo, 1986), and marketing (e.g., Bettman, 1979; Friestad & Wright, 1994; Howard & Sheth, 1969), and has informed scholarly work in fields such as political science and public health.

A desire for greater insight in the 1970s led to a focus on the mental processes that fuel persuasion, and the introduction of dual-process theories of attitude change in the 1980s enabled researchers to make great gains in understanding persuasion and attitudes (Eagly & Chaiken, 2005). Dual-process models maintain that attitude change occurs through two paths. One path—the central, systematic, or conscious route—is via the careful scrutiny and rational evaluation of a persuasive message's arguments. Processing via the second path—the peripheral, heuristic, or nonconscious route—relies on quick judgments that allow a person to reach a decision without having to expend considerable mental energy on analysis.

Building on dual-process theories, researchers have studied the influence of a number of individual differences on persuasion (Briñol & Petty, 2005; Oliver, 2002), including a preference for complex thinking (Cacciopo & Petty, 1982), a need to reach a firm decision quickly (Jost, Glaser, Kruglanski, & Sulloway, 2003; Kruglanski, Webster, & Klem, 1993), personality, and culture (Fiske, Kitayama, Markus, & Nisbett, 1998). The number of dimensions on which people can vary is virtually without limit, but many shared characteristics on which people differ include demographic characteristics such as age, ethnicity, or gender, or psychographic characteristics such as values, attitudes, and lifestyles.

Research based on the heuristic-systematic model (HSM) has begun to recognize the influence of core beliefs and assumptions—what this dissertation terms a worldview—on the processing of persuasive messages (Giner-Sorolla, Chaiken, & Lutz, 2002; Pomerantz, Chaiken, & Tordesillas, 1995). Indeed, some formulations of the HSM explicitly note the potential role of centrally held beliefs as the basis for forming judgments (Chen & Chaiken, 1999), but the construct of centrally held beliefs has not been explicated fully enough for it to play a larger role in the theory. A worldview, which comprises what Chen and Chaiken described as centrally held beliefs, is a set of core a priori assumptions about reality with which a person perceives and interprets surrounding events and information (Koltko-Rivera, 2004; Naugle, 2002).

Differences in how people process information may have an important bearing on how they communicate. As researchers seek to develop more comprehensive theories of human communication, it becomes essential to consider these fundamental individual differences. This task is especially important when considering a concern common to much of social science research, namely that of small effect sizes (Oliver, 2002). In the course of

explaining the importance of their experimental manipulations, researchers too often acknowledge but promptly ignore larger and more powerful social forces that bear on the results of their study (Oliver, 2002). Thus, a large portion of the variance in typical experimental studies remains unexplained. Even if including worldview variables increases the variance explained by 5% to 10%, the effort would be worthwhile (Koltko-Rivera, 2004). Persuasion scholarship has seen a growing body of research that explains how individual differences, such as personality traits or cognitive styles, lend greater insight to a theoretical understanding of attitudes and behavior.

Thus far, research has rarely examined the role of an individual difference similar to worldview in the heuristic-systematic model in persuasion, nor has it fully examined what might cause one's worldview to become more accessible. Consumers are being bombarded by innumerable persuasive media messages, some of which, naturally, are more effective than others. An understanding of the reasons why people respond in different ways to the same message, and why some people pay more attention to some messages than others will help researcher understand the condition under which some effects occur (Oliver, 2002). Incorporation of worldview as an individual difference variable in media effects research holds promise for shedding more light on an important dimension on which people vary, explaining how Robert, Sandra, and Sara can see the same persuasive message and be affected in different ways.

Purpose

This dissertation explores the possibility that a worldview can influence the way a persuasive message is perceived. Building on the heuristic-systematic model of persuasion

(Chaiken, 1980; Chaiken, Liberman, & Eagly, 1989), this dissertation tests if a relativist worldview can moderate how persuasive messages are processed. A person who has a relativist—sometimes referred to as a constructivist—worldview believes that truth is contextual and norms are situational and that personal experience—and not abstract universal principles—is the basis for determining what is real (Berzonsky, 1994; Gergen, 2001).

This dissertation has several goals. One, it aims to contribute toward theory development by illustrating the possible role of worldview as a moderator in the heuristic-systematic model, because a person's response to cues such as source credibility might depend on one's worldview. Research in the model has noted the importance of the belief structure into which attitudes are embedded (Pomerantz et al., 1995), but this finding has received relatively little systematic attention. Chen and Chaiken (1999, p. 79) also urged further research in the multiple motives framework of the model, and this dissertation hopes to contribute toward that end. The multiple motives framework posits that the way a person processes a persuasive message can vary depending one which motive is most salient. In addition to wanting to have a valid and accurate attitude toward a topic presented in a persuasive message such as an ad, individuals are motivated at times to impress other people or to defend their existing self-identity and worldview. In some regards, the defense motivation parallels the key mediating mechanism of terror management theory, namely, existential anxiety that leads to the defense of one's cultural worldview. This dissertation explores that point of connection between the theories in an advertising context.

Likewise, this dissertation highlights the importance of worldview as an antecedent variable in media effects research that can yield greater insight into communication processes (McLeod, 2001). Advances in communication models, particularly those that aspire to be

useful in several fields such as political communication or health communication, will require specifying cognitive and motivational variables that influence media use and the processes of media effects. In the field of political communication, for example, McLeod suggested that broader moderators of media use, such as worldviews and values, likely influence political communication and said that such variables should be explicated and incorporated into the models. In that vein, this dissertation seeks to demonstrate how worldviews can shed light on cognitive processes central to communication theory.

This dissertation also responds to the call for a greater appreciation of epistemology in social psychological experimental research (Jost & Kruglanski, 2002). Understanding the social context in which people move is essential for understanding their thoughts and behavior. Jost and Kruglanski highlighted several promising developments, including the recognition that a shared social reality is essential for a meaningful interpretation of stimuli. Cultural psychology, they said, represents a successful effort toward integrating experimental social psychology and insights from social constructionism. By taking into account personal epistemology in social psychology, researchers stand to gain a deeper understanding of human cognition and behavior.

For U.S. young adults, controlling for gender, ethnicity, and need for closure, what is the relationship between an expertise cue (present, absent), argument quality (strong, weak), mortality salience (present, absent), and a relativist worldview and measures of advertising effectiveness? This relationship is examined via a post-test only 2 (expertise cue, within participants) X 2 (argument quality, between participants) X 2 (mortality salience, between participants) X a relativist worldview (a measured variable, between participants) mixed-factorial experiment.

This chapter first explicates the construct of worldview and its relationship to dual-process models of attitude change and terror management theory. Based on the review of the literature, several hypotheses and research questions are proposed. Chapter 2 details the experimental procedures and describes the stimulus materials and dependent variables used to test the hypotheses. Chapter 3 presents the results of the experiment. Chapter 4 discusses the findings and their theoretical implications, addresses limitations, and offers potentially fruitful avenues of further research.

Worldview

A worldview is a set of assumptions about physical and social reality that shapes the way a person perceives and interprets the world (Koltko-Rivera, 2004; Naugle, 2002). A worldview also provides a sense of meaning to reality and guides the inferences a person draws from what he or she experiences (Koltko-Rivera). These core constructs, or a priori assumptions, form the foundation for knowing and understanding, guiding cognition and behavior. McLeod, Sotirovic, and Holbert (1998) described worldviews as basic beliefs about how the world works. McLeod, Kosicki, and McLeod (2002) defined worldviews as a person's "lay theories about the world around them" (p. 239) and said a worldview can be descriptive—how the world is—or normative—how the world ought to be. In this dissertation, a worldview is defined as a chronically accessible collection of core assumptions or beliefs, often unconscious and untested, with which a person makes sense of the world. The core beliefs and epistemological assumptions subconsciously shape how other thoughts are organized and employed (Koltko-Rivera). The beliefs that make up a worldview

are often socially constructed and culturally bound, being formed by language and social interaction (Naugle). The social environment in which a person's worldview develops has an enduring effect on the perception of media content and how the content is processed.

Worldviews could be considered higher-order constructs that are distinct from lower-order constructs such as attitudes. As Chaffee (1991) noted, if social attitudes are defined as enduring predispositions, one should not expect much change or variance. Studies of "attitude change," then, would be an oxymoron, if that definition were employed. Chaffee's observation highlighted the need for a clear explication of constructs. Attitude has been employed to denote everything from values, as in Rokeach's (1968, 1974) value-attitudes, to mutable opinions (Wyer & Albarracín, 2005). Theoretical clarity requires a well defined explication of a construct and its relation to other antecedent or consequent constructs (Cronbach & Meehl, 1955).

Concern with worldviews and their constituent beliefs is not unique to mass communication, however. The concept is found in many disciplines, including cultural anthropology, theology, and philosophy (Naugle, 2002). In psychology, cultural worldview has been posited as a mediating mechanism in terror management theory (Greenberg, Solomon, & Pyszczynski, 1997; Greenberg et al., 2003). The construct also parallels to some degree personal core constructs (Kelly, 1955), lay epistemologies (Kruglanski, 1989), folk epistemology (Fiske, Kitayama, Markus, & Nisbett, 1998), epistemological beliefs (Schommer & Walker, 1995), implicit theories (e.g., Kardash & Scholes, 1996; Levy, Plaks, & Dweck, 1999; Levy, Stroessner, & Dweck, 1998), and implicit cultural theories (Chiu, Morris, Hong, & Menon, 2000). Koltko-Rivera's (2004) extensive explication of worldview

in social psychology defines a worldview as a set of core assumptions about the nature of reality that form the foundation of values and attitudes.

Scholars have long recognized the importance of people's fundamental beliefs and how those beliefs might influence how people perceive the world. Worldviews and the core dimensions that they comprise (Kotlko-Rivera, 2004) are analogous to Wittgenstein's (1972) idea of world picture and icons/narratives, to Kuhn's (1996) paradigm and exemplars, and to Lippmann's (1922) pseudoenvironment and stereotypes (Figure 1), each of which is discussed in the sections that follow.

Wittgenstein

The concept of worldview, or *Weltanschauung*, was introduced by Kant and often is translated as "philosophy of life" or left intact in German. The term denoted a general perspective that made sense of the world. Wittgenstein, as he explored how language shapes the way people think and behave, sought to move away from the idea, as expressed in Hegel's writing and common in philosophy, that a *Weltanschaaung* inherently competed against others to be the most accurate and all-encompassing view of the world. Instead, Wittgenstein posited that a "world picture" [*Weltbild*] is learned in childhood and serves as a framework for a person's thoughts, values, and actions. The interpenetration of human activity ("forms of life") and words ("language games") formed the foundation of a person's experience and understanding as they, Naugle (2002) said, "embody and express the fundamental features and categories of the world" (p. 157). A world picture creates a person's reality in that it represents reality and also "forms one's way of seeing and conceiving of the world, and understanding its fundamental character" (p. 158). In addition, a

world picture is not acquired after its testing or evaluation. Wittgenstein writes in *On Certainty* (1972), "But I did not get my picture of the world by satisfying myself of its correctness; nor do I have it because I am satisfied of its correctness. No: it is the inherited background against which I distinguish between true and false" (p. 15e). A world picture is not a rational analytical system of thought, in a Cartesian sense, and it is not necessary for it to be thoroughly consistent internally. It is, rather, an icon-based way of experiencing the world and making sense of it. Thus, a worldview could be expected to have greater influence on heuristic processing of information than on systematic or analytic processing.

Wittgenstein (1972) employed the metaphor of a lens to describe the function of a world picture. As a lens filters what the eye detects, so also a worldview shapes one's perception of reality, influencing which events are noticed and which ones are ignored. Wittgenstein also employed the metaphor of a riverbed to describe the relatively fixed nature of world pictures. Statements describing a world picture can be conceived as a mythology, coherent narratives that may or may not correspond to reality. "The mythology may change back into a state of flux, the river-bed of thoughts may shift. But I distinguish between the movement of the waters on the river-bed and the shift of the river-bed itself; though there is not a sharp division of the one from the other" (p. 15e). This distinction is similar to the distinction in psychology between thought process and thought content. The construct of worldview refers to the riverbed that guides cognition. For Wittgenstein, a world picture functions at two moments. At the moment of perception, it is a lens, influencing what a person sees. Once the target has been perceived, the world picture functions as a riverbed, guiding the flow of thoughts as a riverbed shapes the course of the water.

Thus, a worldview, like a lens, can influence how people persuasive message such as an ad, and how people might respond to different arguments or cues. When worldview functions as a riverbed, it can also influence thought processes, such as the degree to which people engage in careful systematic analysis of a message and heuristic processing.

Kuhn

Like Wittgenstein, Kuhn (1996) sought to integrate social influence and thought, though at a societal level, with an explanation of the community-based development of scientific knowledge. Kuhn defined a scientific paradigm as an understanding of reality that unifies inquirers and sets the direction of research. When its explanatory and predictive utility is stretched beyond capacity, the paradigm is replaced in a wholesale fashion by a new one. Kuhn drew an important distinction between events in the world and perceptions of those events. The perceptions can vary according to language or culture or social group:

> Notice that two groups, the members of which have systematically different sensations on receipt of the same stimuli, do *in some sense* live in different worlds. We posit the existence of stimuli to explain our perceptions of the world, and we posit their immutability to avoid both individual and social solipsism. About neither posit have I the slightest reservation. But our world is populated in the first instance not by stimuli but by the objects of our sensations, and these need not be the same, individual to individual or group to group. To the extent, of course, that individuals belong to the same group and thus share education, language, experience, and culture, we have good reason to suppose that their sensations are the same (Kuhn, 1996, p. 193).

In a paradigm, knowledge is embedded in shared exemplars, archetypal images that shape what is perceived and what is ignored. The exemplars themselves carry meaning and shape perception. Exemplars give a person the ability to process information, grouping

situations as being like some and unlike others. Kuhn's notion of exemplars was unlike its use by much of social psychology (e. g., Smith, 1998). Social psychology researchers use exemplars to refer to concrete examples, whereas Kuhn used the term to denote abstract archetypal ideals. For many social psychologists, events that share characteristics of a population of similar events function as exemplars. Exemplars are representations of actual instances and help people store more specific information than do abstractions (Smith, 1998). For Kuhn, however, exemplars are not so-called classic examples in that exemplars are not concrete. Rather, exemplars transcend particular instances of events or objects. An object might be considered to be a classic example if it closely resembles an exemplar, but such an object would not be the exemplar itself. In that regard, Kuhnian exemplars resemble culturally based heuristics that can shape how a person understands a persuasive message.

Unlike Wittgenstein and social psychologists (e.g., Bandura's Social Cognitive Theory, 2001), Kuhn did not consider cognitive processes to occur after perception. Instead, interpretation occurs concurrently with perception, Kuhn (1996) argued, writing, "What I have been opposing in this book is therefore the attempt, traditional since Descartes but not before, to analyze perception as an interpretive process, as an unconscious version of what we do after we have perceived" (p. 193). Perception, for Kuhn, is not an active evaluative thought process, but an instantaneous or automatic action shaped by exemplars. Like Wittgenstein, Kuhn sought to move away from a Cartesian conception of perception as a rational analytic process. Kuhnian exemplars, then, subconsciously shape what is noticed and valued in a message and what is ignored or discarded as anomalous, much like Wittgenstein's lens metaphor. Unlike Wittgenstein, however, Kuhn apparently would not employ the riverbed metaphor to describe the function of a paradigm.

Cues in a persuasive message can trigger the application of exemplars through which a person perceives the message. An image of a laboratory scientist, for instance, might be perceived differently, depending on the meaning attached to that archetypal image.

Lippmann

Focus on constructs analogous to worldview is not a new development in mass communication theory. Decades earlier, Lippmann (1922) had noted that people's understanding shapes their perception of the world. With his famous phrase "the pictures in our heads," Lippmann distinguished between reality and people's perception of the world, inserting between a person and the environment a "pseudo-environment," a mental representation of the environment. People act on their mental models of reality rather than reality itself.

Because people have limited experience, Lippmann said, very few of a person's mental images are based on direct observation. Much of the inventory of mental pictures can be socially constructed, either received from other people or constructed by the individual. Although the images reside in the individual, they are the property of the society in which the person lives. Meaning is embedded in the socially constructed mental pictures, which may vary in the extent to which they represent the world.

Stereotypes, abstract archetypes of the world, simultaneously represent and distort external reality, and Lippmann employed the term "stereotype" instead of platonic ideals, because he considered the word to be more value free (p. 104). Lippmann's use of the term predates voluminous research in social cognition on stereotyping, the use of categories to

attribute traits to people, particularly with regard to ethnicity (Allport, 1954). Lippmann's definition of stereotypes bears substantial similarity to Kuhn's exemplars in that they carry meaning and shape perception. Lippmann wrote, "For the most part we do not first see, and then define, we define first and then see. In the great blooming, buzzing confusion of the outer world we pick out what our culture has already defined for us, and we tend to perceive that which we have picked out in the form stereotyped for us by our culture" (p. 81). These stereotypes, or exemplars to borrow Kuhn's term, form what Wittgenstein would call world pictures. The hallmark of a perfect stereotype, Lippmann wrote, "is that it precedes the use of reason; is a form of perception, imposes a certain character on the data of our senses before the data reach the intelligence" (p. 98). Like exemplars, stereotypes are not part of an interpretive cognitive process that occurs after perception, but constructs that precede it. Lippmann argued that understanding the pictures in a person's head is a prerequisite for understanding behavior.

The constellation of the pictures in one's head constitutes a worldview. The core dimensions on which worldviews vary usually include beliefs regarding human nature, the relationship between human beings and nature, one's orientation toward time, the possibility of certain knowledge, the organization of social relations, and causality (Dalbert, Lipkus, Sallay, & Goch, 2001; Ibrahim & Owen, 1994; Koltko-Rivera, 2004).

Any number of worldviews could be examined, limited only by the means at one's disposal for operationalizing the worldview. Available measures include the Attitudes About Reality Scale (Unger, Draper, & Pendergrass, 1986), the Scale to Assess World Views (Ibrahim & Owen, 1994), the Constructivist Assumptions Scale (Berzonsky, 1994), and the Organicism-Mechanism Paradigm Inventory (Germer, Efran, & Overton, 1982). The General

Social Survey (Davis, Smith, & Marsden, 2004) has included items to measure respondents' worldviews. A battery of seven items (denominated "World Image") probed foundational beliefs such as fatalism, theism, causality, and human nature. In mass communication, McLeod, Sotirovic, and Holbert (1998) operationalized three worldviews: a just worldview, a belief that people are treated fairly in the world; a fatalistic worldview, a belief that a person cannot change events; and a knowable worldview, a belief that the world can be known and that a person can change matters.

A relativist worldview

This dissertation focuses on one worldview, relativism, sometimes referred to as social constructivism or social constructionism. It is important to note that "social constructionism" has at least two current definitions. Social constructionism (Feldman & Lynch, 1988) is the term used to refer to the phenomenon that many self-reported responses to probes of attitudes toward issues, values, and preferences do not really exist a priori in a given respondent until that person is forced to provide an answer. In these instances, responses to previous questions, contextual cues, and other factors influence the responses that are given subsequently. In that regard, the responses are socially constructed and are not true indicators of actual internalized values or attitudes. The second definition of social constructionism is synonymous with social constructivism (Berger & Luckman, 1967; Gergen, 2001), which holds in its radical form that reality does not exist, there are only perceptions of reality which are formed by society. Something is true if everyone in a society agrees that it is so. The less radical form of social constructivism maintains that although reality may exist, one's perceptions of it are socially conditioned and absolute objective

knowledge is impossible. Thus, values and standards of behavior are the product of a given society and, therefore, are relative, not absolute, in their applicability. It is this second definition that is employed in this dissertation to describe a relativist worldview.

Social constructivists, people who hold a relativist worldview, maintain that observations, descriptions, and norms are the product of the society or culture in which one lives (Gergen, 2001). Therefore, truth is contextual and socially determined, not universal. Constructivists believe each person can and should play an active role in developing a sense of identity (Berzonsky, 1994; Gergen, 1991). However, that role extends beyond forging a self-identity; in every area of existence one must play an active role in determining what is true. A person who has a relativist worldview tends to value the self as the source of knowledge but maintains that no one can have absolute or certain knowledge. In a relativist worldview, absolute objectivity is impossible, and one person's perspective is just as valid as that of another. Facts themselves have no inherent independent meaning; they derive meaning from the interpretation that one gives them.

Such relativist epistemological assumptions lead one to discount the credibility of expert knowledge. Authorities are fallible, as is human reason in general. Intuition and affect are valid ways of knowing, and knowledge gained through personal experience trumps any categorical claim. Universal pronouncements and abstract propositional principles are discounted. Any claim of certain knowledge, therefore, is suspect. Further, the enterprise of science is value-laden and cannot be wholly objective.

In general, a layperson's opinion or belief is just as valid as that of a recognized expert. Thus, one can expect that a persuasive message based on an expertise heuristic might be interpreted quite differently from what the communicator had intended. For example, the

expertise heuristic that advertisers assumed they could activate, "Experts' statements can be trusted," would instead be the opposite, "Experts' statement *cannot* be trusted." Instead of giving the message added credibility, such an appeal would be ineffective in an audience that is characterized by a relativist worldview. Further, a strong persuasive argument that relies on an appeal to universal principles is likely to be discounted.

If a worldview is chronically accessible, it should have a general influence over what one sees and how one makes sense of what one perceives. Because it is unclear at this point if such a worldview will have a main effect on the global evaluations of the ads, the following research question is proposed:

RQ1: What effect, if any, will a relativist worldview have on the global evaluations of persuasive ads?

A relativist worldview is characterized by a conviction that absolute objectivity is impossible and that scientific knowledge is fallible. Further, because truth is relative and dependent on context, the validity of universal propositional statements is suspect. Therefore, a relativist worldview should attenuate the effectiveness of ads employing a strong argument based on propositional statements or ads featuring an expertise cue.

H1: A relativist worldview will exhibit an inverse relationship to evaluations of ads containing an expertise cue. In other words, the more relativist one's worldview is, the less favorable one's evaluation of persuasive messages that feature an expertise cue are.

H2: A relativist worldview will exhibit an inverse relationship to evaluations of ads containing a strong propositional argument. In other words, the more relativist one's worldview is, the less favorable one's evaluation of persuasive messages that feature arguments based on propositional statements.

Evaluations of the persuasive messages will be lower among participants who have a relativist worldview. One's chronically accessible worldview will be considered applicable, or diagnostic, and function as a lens through which one evaluates both arguments and heuristic cues.

The dynamic nature of worldviews

Conceptions of worldview as a filter tend to portray worldview as a chronic disposition. This dissertation, however, borrowing from cultural psychology (Briley, Morris, & Simonson, 2000; Hong, Morris, Chiu, & Benet-Martinez, 2000), adopts a dynamic constructivist approach to worldviews. That is, although worldviews are rather stable and enduring over time, their effect in a particular situation is dynamic, depending on the cues that might heighten their influence. Although a worldview is chronically accessible, any number of factors may temporarily increase the worldview's accessibility. In addition, features of the object of one's attention could function as cues to make the available worldview deemed relevant or applicable in forming an opinion regarding that object.

People's fundamental patterns of thought or "complex conceptual structures" such as deep cultural ideologies can be primed nonconsciously (Bargh, 2006). Culturally or nationally based ways of thinking can be primed by national symbols or by language itself (Aaker, 2000; Nisbett, 2003). Cues in a message, for example, could make one's worldview

more accessible and relevant to the message at hand, thereby influencing how information is processed. A person's worldview could function as a source of heuristics primed by situational cues. Given this possibility, one model that is particularly relevant in explaining this relationship in the context of persuasion is the heuristic-systematic model (Chaiken, 1980; Chaiken et al., 1989).

Heuristic-Systematic Model of Persuasion

The heuristic-systematic model of persuasion (Chaiken, 1980; Chaiken et al., 1989) is a dual-process account of attitude change. Persuasion occurs through one of two paths. A person can process information systematically through effortful analysis, through the application of heuristics that require substantially less effort, or through a combination of both. While one engages in conscious elaborative thought in the systematic route to reach an accurate conclusion regarding an object, in the heuristic route one employs "mental shortcuts" or takes cues from characteristics of the message to develop a valid attitude (Chaiken, 1980; Chaiken et al., 1989). Persuasion that occurs via the systematic route is held to be more enduring because the arguments are integrated into one's existing cognitive structure (Petty & Cacioppo, 1986). Persuasion that occurs on the basis of cues is more ephemeral, either decaying after time or being highly susceptible to change when confronted with counterarguments.

To engage in systematic thought, a person must be both able and motivated to do so. When cognitive resources are available, (and under conditions of high involvement) one will engage in systematic analysis. When cognitive resources are burdened, one is less able to

conduct elaborative thought and will rely instead on cognitive shortcuts for developing an attitude toward the topic. Dual-process theories largely assume that systematic processing tends to be objective and rational and that heuristic thinking is more likely to be biased. If people engage in effortful rational analysis, they will reach objective and true conclusions, although heuristic processing can exert a biasing influence on systematic processing (Chaiken & Maheswaran, 1994).

Co-occurrence

Although systematic and heuristic paths are described as separate modes that co-occur, they are not independent of each other with regard to their influence (Chaiken & Maheswaran, 1994; Chen & Chaiken, 1999). The model makes several predictions deriving from relative differences in the strength of systematic and heuristic processing. When systematic and heuristic information is congruent and both paths exert somewhat equivalent levels of influence, their effect is compounded, a result predicted by the *additivity hypothesis*. For example, a strong argument can lead a voter to have a positive attitude toward a politician, and an endorsement by a political expert can lead to an even more favorable attitude toward that politician. When the effect of heuristic cues is strong and arguments are weak or ambiguous, the heuristics will bias systematic processing, an effect predicted by the *bias hypothesis*. Bias occurs in this instance when the unfavorable effect of weak arguments for a politician is offset by an endorsement by an expert political observer. When systematic and heuristic information is incongruent, processing from one path might reduce the effect of information processed via the other route, which is labeled the *attenuation hypothesis*. The

favorable effect of a strong argument for a politician might be reduced if it were paired with an endorsement by a public figure suspected of political corruption.

Chen and Chaiken (1999) maintained that heuristic processing entails some level of awareness, unlike the Barghian notion of implicit processing, in which many cues never enter a person's consciousness (Bargh & Chartrand, 1999). In the heuristic-systematic model, observers normally must be aware of the cue in order to perceive it, but they need not be aware of the activation of the heuristic or their processing of information. Heuristic processing can be started by cues in either the message or the communication context, but in addition to being triggered by situational cues, heuristics may also be triggered by internal information, such as observers' mood states or opinions. Such internal or dispositional cues, Chen and Chaiken noted, are more likely to spark nonconscious heuristic processing.

An example of a heuristic cue is source expertise (e.g., "Experts' statements can be trusted"), which Chaiken et al. (1989) suggested would lead a person to form a positive attitude toward a target without evaluating systematically all of the information available. If a person believes that an expert source lends credibility to a message, then that person might devote less effort to analyzing the message itself, accepting its validity based on the associated source.

For a heuristic to function, the mental shortcut must be internalized and available in memory. In addition, the heuristic must be accessible in a particular persuasion episode. The accessibility of a heuristic can be influenced by internal traits or states, or the setting can include cues that will activate the heuristic. Further, a particular heuristic must be diagnostic or be deemed relevant enough to exert influence on the information at hand.

Heuristic processing is more likely to occur in conditions of low involvement. A person in a state of low involvement has little motivation to exert enough effort to analyze a message systematically. Thus, when a person is unwilling to scrutinize an advertising message a cue in that message can activate a heuristic that will be used to evaluate the product favorably (or unfavorably). Under conditions of high involvement, a person is motivated to analyze a message systematically and will be less likely to depend largely on mental shortcuts to make an evaluation.

Multiple motives

Although the model was developed initially (Chaiken, 1980) based on a single motive, that of holding an accurate and valid attitude toward an object (*accuracy motivation*), the model subsequently (Chen & Chaiken, 1999) was expanded to include several motives, which can be dispositional or situational. Chen and Chaiken outlined three motivations: accuracy, impression, and defense. These motivations are not exclusive, but one might take primacy over the others in any given context. In some cases, a person's primary goals are social, namely to manage one's impression on other people. The *impression motivation* might derive from social norms or from social goals. When impression is a primary motivation, it will influence the application of some heuristics over others to serve a given social goal. An impression motivation can be induced by telling a study participant that after reading an argument he or she will have to discuss the issue with someone who holds a strong opinion on that topic. The participant is then motivated process the information in a way that will allow him or her to manage the impression he or she makes on the other person. A *defense motivation* derives from the intent to maintain and bolster one's material interest and the

attitudes and beliefs that are closely linked with one's sense of self. Chen and Chaiken cited values, a social identity, and personal characteristics as self-definitional beliefs that a person might seek to defend.

Antecedent traits

Although the bulk of heuristic-systematic research focuses on the two processing modes, researchers have noted that some antecedent traits exert an influence on both modes. A person's ideology, for example, can influence both heuristic and systematic processing (Giner-Sorolla et al., 2002). A deep structure of core beliefs and assumptions can form a foundation for some attitudes and opinions and make the attitudes less malleable. Some attitudes are resistant to change, therefore, because they are embedded in a larger structure of values, ideologies, identities, and knowledge (Pomerantz et al., 1995). Thus, the systematic elaboration of a message might not be enduring if the goal of the message is to produce an attitude that is incongruent with one's existing belief structure. This also suggests that one's worldview should exert an influence on both systematic and heuristic processing, and not just the heuristics employed. Of course, many attitudes may not be rooted in core beliefs, but instead are constructed as needed (Feldman & Lynch, 1988) and therefore be susceptible to a number of dispositional and contextual factors. In these instances, one's worldview might be diagnostic for constructing attitudes on issues where none had existed.

When people process heuristically, they invoke inferential rules, "learned knowledge structures," "implicit beliefs," or stereotypes, either consciously or not, to make evaluations or reach decisions based on a minimal amount of information (Eagly & Chaiken, 1993; Chen & Chaiken, 1999). Subjective experiences are a source of heuristic processing, but for the

experience to have a judgmental impact, the observer must have some "theory" (p. 87) with which to interpret information. An individual's theory, which Chen and Chaiken defined as "previously learned judgment rules" (p. 87), is triggered by one's subjective experience and becomes a heuristic that is applied in a given situation.

In the heuristic-systematic model, a worldview might be classified as a dispositional or internal source of heuristics that, like theory, enables one to make sense of one's experience. Although the construct of an internal theory parallels in many respects that of worldview, a worldview is trans-situational and much broader than what Chen and Chaiken (1999) defined as learned rules for evaluating a particular situation. A worldview is not learned, in an active sense; much of a worldview, like implicit cultural theories (Chiu et al., 2000), is acquired via culture and language. Thus, a given group of people can share a particular worldview, which can be characteristic of a culture or subculture. While each individual might have an internal theory or set of rules for making judgments that develops according to personal experience, which results in as many theories as there are individuals, many people can be characterized by a common worldview.

If worldview is akin to the notion of a person's internal theory in the heuristic-systematic model, then it could be a source of heuristics. However, worldview might also be an antecedent variable to the persuasion process and not a source of heuristics but rather a dispositional trait that influences the availability, accessibility, and diagnosticity of heuristics. Belief structures, as described by Giner-Sorolla et al. (2002), are not a source of heuristics; they are traits that influence the effectiveness of a given persuasion effort. Further, if worldview is solely a source of heuristics, then it should not affect systematic processing in the absence of heuristic cues.

Because the systematic and heuristic modes are independent, one mode is not held to moderate the other. Instead, they have a joint, or net, effect. A cue does not amplify the effect of an argument, it merely adds to it. In many studies of additivity, attenuation, or bias, the cue is presented before the argument. Participants are told that the communicator is an expert (e.g., a college professor) or a nonexpert (e.g., a high school senior) before they proceed to read an argument about a given topic (e.g., comprehensive exams). Thus, the cue and arguments are presented sequentially. In this study, however, the arguments and cues are presented simultaneously, as in the Maheswaran and Chaiken (1991) study, which used ads for an answering machine.

The additivity hypothesis of the heuristic-systematic model predicts that the effect of systematic information and heuristic cues will be compounded when they are congruent. Therefore, evaluations of ads containing both an expertise cue and a strong argument should be higher than those of ads containing either a strong argument or an expertise cue alone, all of which should be higher than evaluations of ads containing a weak argument and no expertise cue.

H3: Evaluations of ads containing both an expertise cue and a strong argument will be stronger than those of ads containing the expertise cue alone or a strong argument alone.

The additivity hypothesis, tested in H3, holds that the congruency of systematic information and heuristic cues will compound their effect. However, a relativist worldview should moderate their individual effects, as predicted in H1 and H2. It is uncertain what would be the net result of the product of the additivity hypothesis and a relativist worldview.

The relationship of expertise cue, argument quality, and worldview leads to the following research question:

RQ2: Will a relativist worldview moderate the joint effect of both an expertise cue and a strong argument?

Of course, one's worldview is not the only dispositional factor that influences how persuasive messages are processed. Any number of individual differences can affect one's attitudes toward a persuasive message. It is possible, also, that people form differing attitudes toward an advertisement and the product it promotes, particularly if people draw on their experience with other attempts at persuasion. Instead of one general attitude, people might form separate attitudes toward the topic of a message and the source of that message. One model that explains this phenomenon is the persuasion knowledge model (Friestad & Wright, 1994).

Persuasion Knowledge Model

The persuasion knowledge model (Friestad & Wright, 1994) has a broader scope than dual-process theories such as the elaboration likelihood model and heuristic-systematic model. The model seeks to explain other types of knowledge present in a persuasion attempt and how this knowledge might influence responses to a persuasive message. A *target* is the person toward whom a persuasion attempt is directed, such as a consumer. An *agent* is the entity responsible for the persuasion attempt, such as a salesperson, or a company. A

persuasion attempt denotes any effort toward attitude change and includes an ad, a message, or a campaign.

Like the heuristic-systematic model, but unlike the elaboration likelihood model, the persuasion knowledge model assumes that people have more than one motivation. People are motivated to hold a valid topic attitude, but they also can be motivated to hold a valid agent attitude. The salience of these goals may be mixed. For example, in a given situation a target might be highly motivated to hold a valid attitude toward a particular agent and less motivated to develop a valid attitude toward a topic. The persuasion knowledge model leaves open the possibility that targets may have more than these two goals. Other goals could include maintaining high self-esteem or earning the admiration of another person (which parallels the impression motivation in heuristic-systematic model).

Targets and agents have three types of knowledge. Topic knowledge, the traditional concern of dual-process theories, concerns information related to the product. Agent knowledge concerns information related to a company or sales representative. Persuasion knowledge concerns information regarding the persuasion process. Persuasion knowledge can be characterized as schemata regarding persuasion, including beliefs about psychological mediators in persuasion, marketers' actions and their effects, and one's efficacy in dealing with persuasion efforts. Persuasion knowledge operates during heuristic processing and systematic processing and under conditions of both low and high involvement.

Targets can access any or all of the three types of knowledge during a persuasion attempt, and the use of one type of knowledge will have an effect on the utility of the other types. An increase in the use of persuasion knowledge, for example, can result in a greater cognitive load and an attendant shift away from the use of topic knowledge.

Change of meaning

A key contribution of the persuasion knowledge model is the "change-of-meaning" principle. A cue that is valid in the heuristic-systematic model could be perceived as a tactic. Once this occurs, the action changes meaning and the effectiveness is minimized or lost entirely. It does not matter whether the agent intended the action to be a tactic or not; what matters is that the target perceived the action as a tactic. Some tactics might be effective as long as they remain tacit. Once a target becomes aware of a tactic, though, the effect is no longer automatic and is eliminated.

One could assume the converse and have what this author would call the "reinforcement-of-meaning" principle. If a technique is perceived as a tactic, but one that is evaluated under persuasion knowledge as being appropriate or respectful, then the effectiveness of that tactic is heightened, not minimized. This approach assumes a nonadversarial model, of course. The difference between a change of meaning and a reinforcement of meaning is based on a qualitative difference between types of persuasion knowledge; it is not based on any expert/novice distinction that derives from the amount of persuasion knowledge a target possesses.

The notions of the "reinforcement-of-meaning" principle and the "change-of-meaning" principle parallel the three hypotheses outlined in the heuristic-systematic model. The "reinforcement-of-meaning" principle resembles the additivity hypothesis in the sense that both predict that a tactic or cue that is congruent with the persuasion effort or systematic argument will yield an effect of a complementary nature. The "change-of-meaning" principle parallels both the attenuation hypothesis and the bias hypothesis. A tactic or cue that is

incongruent with the argument will reduce the effectiveness of the message or otherwise change its meaning in unintended ways.

One key distinction between the HSM and PKM, however, is that additivity and attenuation are described primarily in terms of strength, with bias incorporating a change in valence. The change-of-meaning principle, however, focuses on a change in valence, but not strength. More precise predictions and explanations can be proffered by separating the related ideas of strength and valence.

Persuasion knowledge and worldview

Although both persuasion knowledge and worldview can be thought of as belief-based sources of influence on information processing, they are not equivalent. Persuasion knowledge comes from both a target's personal experience and reflection and from a shared cultural folk model of persuasion. Persuasion knowledge is learned over time, and because persuasion knowledge is learned over time, it is dynamic, continually evolving. Persuasion knowledge and worldviews are distinct constructs, though. Unlike persuasion knowledge, which is learned and more changeable, the core assumptions of a worldview are largely tacit and much less malleable. A person who holds relativist assumptions believes that science is value laden and that absolute objectivity is impossible. The assumption that truth is relative and contextual is not labile like persuasion schemata regarding, say, a salesperson. Persuasion knowledge, like other nonfoundational schemata, is influenced by or situated in one's culture and worldview.

Thus far, this chapter has examined worldview theory and its possible contribution to media effects research. This was followed by an overview of two dual-process models of

persuasion to which the construct of worldview might relate, namely the heuristic-systematic model and the persuasion knowledge model. One final element to be examined is terror management theory and its relationship to theories of worldview and persuasion.

Terror Management Theory

Worldviews can be assessed as a latent set of core beliefs that are internal, but situational cues can prime a latent worldview's salience and bring it to bear on the way a person interprets events. Terror management theory (Greenberg et al., 1997; Greenberg et al., 2003; Pyszczynski et al., 2004) holds that awareness of one's own mortality triggers anxiety, which leads people to cope with it in two ways: by defending their cultural worldview and boosting their self-esteem. Fear is a strong motivating force, and to deal with their anxieties, people endeavor to maintain their existing self identity and understanding of the world (Pyszczynski & Cox, p. 428). These actions serve to buffer the effects of existential anxiety.

A cultural worldview is socially constructed and dependent on social validation. Pyszczynski et al. (2004) define a cultural worldview as shared symbolic conceptions of reality that provide a sense of meaning and order to one's existence. In addition, a cultural worldview offers a standard of values and a promise of literal or symbolic immortality. It is derived from culture but internalized in each individual, varying across cultures and persons.

Mortality salience is a useful manipulation in experimental conditions. Researchers have found that making mortality salient leads people to defend their worldview and boost self-esteem (Pyszczynski et al., 2004). More than 150 studies have provided support for mortality salience in a variety of contexts (Arndt, Cook, & Routledge, 2004), including

persuasion, such as resistance to persuasive appeals (Shehryar & Hunt, 2005) and the relationship of death-related thoughts and personal relevance (Solomon, Greenberg, Pyszczynski, & Pryzbylinski, 1995).

A mortality salience induction can generate two types of responses. A *proximal* response occurs when participants consciously deal with their concerns immediately after the manipulation. This serves to reduce death-related anxiety. If participants are not able to engage in a proximal response, then after a short period of time they engage in *distal* nonconscious responses such as stereotyping that appear to the participant to be unrelated to an awareness of their mortality.

Greenberg et al. (2003) defined and operationalized the worldview through national U.S. identity and measured an increase in pro-U.S. bias as defense of the cultural worldview. This assumes, of course, the pre-existence of a pro-U.S. bias, which mortality salience should intensify. They found that mortality salience resulted in an increase in U.S. nationalism. However, nationalism is only one element of a cultural worldview. It is likely that other types of thought patterns were intensified, as well.

The defense motivation parallels the primary motivational mechanism in terror management theory (Greenberg et al., 2003) and suggests a link between the theories. Chen and Chaiken (1999) wrote, "The defense-motivated perceiver aims to preserve the self-concept and associated world views, and thus processes information selectively—that is, in a way that best satisfies such defense concerns" (p. 77). Thus, a person's defense of a cultural worldview leads to a reliance on heuristics that are closely tied to one's sense of meaning. This explanation certainly is congruent with findings from terror management research, such as increased stereotyping when mortality is salient. Mortality salience, then, shifts one's

primary motivation from accuracy to defense, which heightens the influence of one's worldview, which in turn influences the accessibility and diagnosticity of available heuristics.

Although mortality salience should lead to defensive processing in general, it is still uncertain what main effect, if any, mortality salience would have on an expertise cue, argument quality, or general evaluations of ads. It is also uncertain if mortality salience would interact with an expertise cue or with argument quality to affect evaluations of ads. Therefore, the following research questions are posed:

RQ3: What effect, if any, will mortality salience have on evaluations of ads?

RQ4: Will mortality salience interact with an expertise cue or with argument quality to affect the evaluation of ads?

If mortality salience affects the influence of either argument quality or an expertise cue, it is uncertain in what way mortality salience might moderate the product of the additivity hypothesis. This three-way interaction of expertise cue, argument quality, and mortality salience leads to the following research question:

RQ5: Will mortality salience moderate the joint effect of both an expertise cue and a strong argument?

The defense motivation of the heuristic-systematic model predicts that an individual whose existing self-identity and beliefs are threatened will be motivated to engage in defensive processing. Terror management theory, in a similar fashion, predicts that making one's mortality salient will lead an individual to defend one's cultural worldview. This

dissertation predicts, therefore, that manipulating mortality salience will heighten the accessibility of one's worldview.

H4: Mortality salience will affect worldview such that the slope of the worldview scores will be greater in the mortality salience condition than in the alternate condition.

If a relativist worldview interacts with an expertise cue to moderate the effect of the cue on the evaluation of ads, and if mortality salience intensifies the influence of a worldview, these effects should combine to intensify the two-way interaction predicted in H1. Likewise, if a relativist worldview interacts with a strong propositional argument to moderate the effect of argument quality, mortality salience should make the interaction predicted in H2 even stronger.

H5: Mortality salience, worldview, and an expertise cue will interact such that participants' evaluations of ads will be lower (higher) than the two-way interaction tested in H1.

H6: Mortality salience, worldview, and argument quality will interact such that participants' evaluations of ads will be lower (higher) than the two-way interaction tested in H2.

Chapter II

Method

The hypotheses were tested in a post-test only 2 (Expertise cue, within participants) X 2 (Argument quality, between participants) X 2 (Mortality salience, between participants) X a relativist worldview (a measured variable, between participants) mixed-factorial experiment (N = 156). The design is illustrated in Figure 2.

After being assigned to either a mortality salience condition or a control condition, the degree to which participants' worldview tended toward relativism was assessed. Participants then viewed ads that contained an argument quality manipulation and an expertise cue manipulation after which they reported their attitude toward the ad, attitude toward the brand, and behavioral intentions.

Participants

Participants were drawn from undergraduate students of journalism and mass communication at a major southeastern university and were offered course credit in exchange for their participation.

Stimulus materials

Mortality salience. Mortality salience was manipulated using the procedure followed by Greenberg et al. (2003). Participants were asked to write responses to the following two

questions: “Please briefly describe the emotions that the thought of your own death arouses in you” and “Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead.” In the Greenberg et al. control condition participants were asked about dental pain. Halloran and Kashima (2004), however, asked participants to complete similar questions about watching television as a control condition. Because this dissertation concerns epistemological assumptions and not pain, it employed the Halloran and Kashima control condition of watching television.

Need for closure. Because the effects of the mortality salience manipulation are strongest following a short delay, a filler task was used before measuring the effects of the manipulation. Halloran and Kashima (2004) used the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988) as a filler task after the manipulation. Ferraro, Shiv, and Bettman (2005) also administered the mood instrument following a mortality salience manipulation, but they also used the measure to control for mood effects. In the present dissertation, the Need for Closure (Kruglanski, Webster, & Klem, 1993) was administered as a filler task following the mortality salience manipulation (see Appendix C). This instrument was used also to measure trait involvement for possible inclusion as a covariate. A high need for closure is associated with a greater proportion of heuristic thoughts to systematic thoughts because people who rank high in the need for cognitive closure tend to use mental shortcuts to reach a quick decision (Kruglanski, Webster, & Klem). Similarly, a high need for closure is associated with a greater reliance on implicit theories (or worldview) in making inferences (Chiu et al., 2000).

Worldview. To reduce mono-operation bias, two instruments were used to measure a participant's worldview. A relativist worldview was assessed via the Constructivist Assumptions Scale (Berzonsky, 1994) and the Attitudes About Reality Scale (Unger et al., 1986).

The Constructivist Assumptions Scale (Appendix C) is a 12-item instrument designed to evaluate the extent to which a person agrees with constructivist assumptions on the possibility of objective and permanent knowledge. Although the measure was developed in the context of ascertaining a person's identity style or conception of the self, it is equally useful in probing a person's attitudes toward the nature of reality in general. Statements include: "What we see with our own eyes is influenced by our expectations," "Scientific facts are universal truths; they do not change over time" (reversed), and "Truth is relative. What is true at one point in time may not be true at another." The scale has a reported Cronbach's alpha of .80.

The Attitudes About Reality Scale (Appendix C) was developed to measure personal epistemology regarding science and knowledge and assesses the degree to which a person believes that reality is objectively knowable or socially constructed. Although there is some debate about the measure's construct validity, namely whether one end of the scale should be called logical positivism (Jackson & Jeffers, 1989; Harrison & Atherton, 1992), researchers tend to agree that the other end represents a relativist perspective. The 40-item scale had a reported alpha of .72, and the revised 28-item measure had an alpha of .80. The AAR has been used in several studies and has been reported to be associated with education, political attitudes and religious affiliation (Unger et al., 1986; Columbus, 1993; Evans, 2000).

Argument quality. A series of strong and weak arguments was developed for 10 ads for consumer goods, durable goods, and a political candidate and a political issue. These arguments, as well as the arguments from two ads used in separate published studies that manipulated argument quality (Petty, Cacioppo, & Schumann, 1983; and Sengupta, Goodstein, & Boninger, 1997), were administered in a pretest ($N = 37$) to determine which of the 144 statements ranked highest and lowest. On a 9-point Likert-type scale the mean evaluations ranged from 2.27 to 7.42. The results of the pretest revealed that the arguments used in published studies ranked as high and as low as the other arguments generated for the pretest. In the interest of comparability with previous studies, therefore, it was decided to employ the published ads and adapt them for the present experiment with the substitution of expertise cues for the celebrity endorser cues used in those studies.

In the dissertation experiment participants were asked to rate a battery of two counterbalanced print ads. The first ad was for "Ritual" mouthwash (Sengupta et al., 1997). The strong arguments were "Ritual far outperforms all other brands at reducing bad breath;" Ritual kills harmful germs, according to laboratory tests;" and "Leaves your mouth with a fresh, great-tasting, minty flavor." The weak arguments were "Ritual has a stylish easy-to-use cap that matches the bottle;" Ritual is available in an attractive, fresh new color, too;" and "Ritual comes in many convenient sizes, including a handy trial size." The brand name appeared in the upper right-hand portion of the page. The arguments were placed across the upper center portion of the page. A stock photograph of a young woman pouring mouthwash was placed prominently in the lower left-hand portion of the page. The ad also featured a light pink background, a color that complemented the photograph. In the lower right-hand margin of the page appeared the statement "Start your day with Ritual."

A second ad was for a razor (Petty et al., 1983; Kahle & Homer, 1985). The razor in the original study (Petty et al.) was branded "Edge," which might prime associations with "Edge" shaving cream, a popular product, among some participants. The brand was changed, therefore, from "Edge" to "Quest" to minimize potential confounds. The brand name appeared in the upper center portion of the page, with a stock photo of a razor in the upper right-hand corner. Below the brand name and photo appeared the statement "Until you try the new Quest disposable razor, you'll never know what a 'really close shave' is." A stock photo of a razor in water with a blue background filled in the lower left-hand quarter of the page. At the bottom center of the page appeared the statement "Get the Quest difference!" The arguments appeared in the lower right-hand quarter of the page. The original study (Petty et al.) featured five strong statements and five weak statements, but only three statements of each type were used in this dissertation so that the manipulation of argument quality would be comparable with that of the mouthwash ad. The strong arguments were "Special chemically formulated coating eliminates nicks and cuts and prevents rusting;" In direct comparison tests, the Quest blade gave twice as many close shaves as its nearest competitor;" and "Unique angle placement of the blade provides the smoothest shave possible." The weak arguments were "Floats in water with only a minimum of rust, spotting, or corrosion;" "In direct comparison tests, the Quest blade gave no more nicks and cuts than its competition;" and "The Quest razor comes in various sizes, shapes, and colors, with a matching case."

Some of the statements for strong and weak arguments were edited slightly so that all the statements would be approximately the same length and would avoid cueing the "length-is-strength" heuristic (Wood, Kallgren, & Preisler, 1985).

Expertise cue. In the ad for mouthwash, expertise was manipulated by placing in the upper right-hand corner a stock photograph of a female chemist wearing a white lab coat and protective goggles studying a test-tube of liquid. The phrase "Developed by Ritual Laboratories" was superimposed over the lower portion of the photograph. In the ad for razors, expertise was manipulated by placing in the upper right-hand corner a stock photograph of a male engineer wearing a white lab coat and protective goggles measuring small rectangular metal plates with calipers. The phrase "Developed by Quest Laboratories" was superimposed over the lower portion of the photograph. In those ads in which the cue did not appear, the space was empty.

A mock legal notice in fine print (6-point font) was placed at the bottom of each ad. The notice at the bottom of the mouthwash ad read: "© 2005 Ritual. Patent Pending. All rights reserved." The notice at the bottom of the razor ad was similar: "© 2005 Quest. Patent Pending. All rights reserved." Each ad was designed to resemble a publisher's proof with crop marks of a full-page ad in a magazine. For each ad, four versions were created, each of which featured either a strong or weak argument and the presence or absence of an expertise cue (Appendix C). Participants viewed only one version of each ad, depending on the experimental condition and counterbalancing sequence to which they were assigned. The order of the ads, argument quality, and expertise cues was counterbalanced via Latin squares. The counterbalanced order is illustrated in Figure 1.

Dependent Variables. The effectiveness of the ads was assessed by asking participants to report their attitude toward the ad, attitude toward the brand, and behavioral intentions. Attitude toward the ad and attitude toward the brand were measured using 9-point semantic

differential scales using prompts from the Attitude Toward the Business (Overall) scale (Bruner, James, & Hensel, 1992; Kalyanaraman & Oliver, 2001). Examples include: "Appealing-Unappealing;" "Clear-Confusing;" "Interesting-Boring;" and "Positive-Negative" (see Appendix C). Behavioral intentions were measured on a 9-point Likert-type scale using prompts from the Behavioral Intention scale (Bruner et al., 1992). The two items were the following: "Rate the probability that you would purchase this product;" and "Rate the probability that you would try a free sample of this product" (see Appendix C).

Procedure

The dissertation involved 156 undergraduate students, who participated in exchange for course credit as part of the participant pool in the School of Journalism and Mass Communication. Of the total, 74% were female, and 78% were Caucasian, which reflected the composition of the population of undergraduate journalism students at the university.

The study took place in a large classroom in the School of Journalism and Mass Communication. The majority of the sessions took place in the afternoon or early evening. The number of participants in an experimental session ranged from 6 to 15. After a brief introduction and explanation, each participant completed the study independently. Participants in a single session were randomly assigned to different experimental conditions. When larger numbers of participants were present, it was nearly possible to conduct all 16 conditions simultaneously, which avoided the possibility that a particular session might be confounded with experimental condition.

People who are highly motivated and able to form an attitude toward a particular target are more likely to exert greater effort and process information systematically (Chaiken

et al., 1989). Therefore, to promote a condition of low-involvement processing, participants were told that they were participating in a series of studies that measure a variety of topics, including philosophies of life and attitudes toward many things in general, such as media use and advertising. They were told that their responses would be used to refine experimental materials that would be used in future studies. To minimize the possibility of missing data, however, participants were encouraged to complete each questionnaire completely before proceeding to the next one.

Participants were randomly assigned to a mortality salience condition or a television (control) condition. After the mortality salience manipulation, participants completed the Need For Closure (Kruglanski et al., 1993), followed by the Constructivist Assumptions Scale (Berzonsky, 1994) and the Attitudes About Reality Scale (Unger et al., 1986). Participants then viewed and evaluated a counterbalanced battery of 2 ads. Participants evaluated the first ad before proceeding to the second one. For example, Participant 1, after giving an informed consent and assigned to the mortality salience condition, began by answering the mortality salience prompts: "Please briefly describe the emotions that the thought of your own death arouses in you;" and "Jot down, as specifically as you can, what you think will happen to you as you physically die and once you are physically dead." This participant then completed the Need for Closure Scale, followed by the Constructivist Assumptions Scale and the Attitudes About Reality Scale. Then, Participant 1 viewed the first ad, which contains a strong argument and an expertise cue. After viewing that ad, the participant rated the ad for attitude toward the ad, attitude toward the brand, and behavioral intentions. That person then completed the manipulation check measures (argument quality, perceived expertise, and perceived credibility). Participant 1 then viewed a second ad, which

contain a second strong argument and no expertise cue, and rated the ad on the same dependent measures in the same order.

Participant 2, assigned to the control (TV) condition, was asked to complete the following prompts: “Please briefly describe the emotions that the thought of watching television arouses in you;” and “Jot down, as specifically as you can, what you think happens to you as you watch television.” Then, Participant 2 completed the Need for Closure Scale, followed by the Constructivist Assumptions Scale and the Attitudes About Reality Scale. Participant 2 then viewed and evaluated a sequence of counterbalanced ads, the first of which contained a strong argument and an expertise cue. After viewing this ad, the participant rated the ad for attitude toward the ad, attitude toward the brand, and behavioral intentions, followed by the manipulation checks. Participant 2 proceeded to a second ad, which contained a strong argument and no expertise cue, and evaluated the ad. The sequence for the subsequent two participants mirrored that of the first two participants, except that the ads contained weak arguments instead of strong arguments. Thus, Participant 3, like Participant 1, was assigned to the mortality salience condition, with the only difference being that the ads that Participant 3 viewed contained a weak argument. Likewise, the sequence for Participant 4 followed that of Participant 2, with the difference that the ads featured a weak argument.

At the end of the session, to counter effects of the mortality salience condition, all participants were asked to complete the following prompts: “Please briefly describe the emotions that finding a winning lottery ticket for $1 million would arouse in you;” and “Jot down, as specifically as you can, what you think you would do if you won $1 million.” Following the conclusion of the experiment, participants were debriefed and thanked.

Chapter III

Results

Descriptive statistics

The data were screened for outliers, and four cases with a large Cook's distance on at least two of the three dependent variables were deleted. Two cases that exhibited response sets were deleted, and the responses of one student who dozed off during the experimental session were excluded, as well. The remaining 149 cases were analyzed.

The variables were screened for univariate normality (Table 2). On a nine-point Likert-type scale, the expected standard deviation is 1.33 (8 points divided by 6 standard deviations), and the Need For Closure Scale, the Constructivist Assumptions Scale, and the Attitude About Reality scale yielded a standard statistic that was less than .85, suggesting that the distribution of scores was somewhat restricted. For most variables, skewness and kurtosis were within acceptable limits, with none of the coefficients exceeding 2.0. However, the scores on the Need For Closure Scale and the Constructivist Assumptions Scale tended to be leptokurtic, as their coefficients exceeded twice their standard error. Nevertheless, neither of the variables was transformed, as neither exhibited severe kurtosis.

Scale assessment

The unidimensionality of the measures was assessed via the method recommended by (Gerbing & Anderson, 1988). Each measure should assess only one construct, as tested by a

confirmatory factor analysis. If a scale is unidimensional, the χ^2 value should be non-significant. If the χ^2 value is significant, however, the Cronbach's alpha reliability estimate should be interpreted with caution, as the scale might assess more than a single unitary construct. None of the measures was unidimensional (Table 3), but no change was made to improve their unidimensionality because the measures were drawn from published research and refinements might jeopardize the comparability of the results with other research.

The reliability of the continuous variables was assessed via Cronbach's α (Table 3). The Constructivist Assumptions Scale yielded a Cronbach's α of .59, which was too low for the measure to be used profitably, so the scale was excluded from the analysis. The Attitudes About Reality scale yielded a Cronbach's α of .77, which though lower than desired, did not preclude its use. The correlation of the two items that made up the behavioral intentions measure ($r = .50$, $p < .001$) was strong. The measures of A_{ad} and A_{brand} yielded a Cronbach's α of .90 and .94, respectively. The measure for the 5-item manipulation check of perceived argument quality yielded a Cronbach's α of .86 for weak arguments and .82 for strong arguments. Because of an item-total correlation that was notably lower than its peers, one item each was removed from the measures of perceived expertise and perceived credibility, and each measure, which comprised three and five items, respectively, yielded a Cronbach's α of .91.

Correlations of the independent and dependent variables used in this dissertation are found in Table 4.

Order and manipulation checks

Because expertise cue was a within-subjects factor, the possibility of differential carryover was examined. To test for order effects, the means of the dependent measures (A_{ad}, A_{brand}, and behavioral intentions) in the first and second order were compared via paired t-tests. Of the 48 pairs of dependent variables assessed (16 sequences x 3 dependent variables), differences between 13 pairs of means were statistically significant ($p < .05$). Therefore, the within-subjects factor of expertise cue was shifted to a between-subjects factor by using only the data from the first order.

The manipulation checks for argument quality and expertise cue were assessed via a one-way analysis of variance (ANOVA). Argument quality was a significant predictor of the manipulation check measure, perceived argument quality, $F(1, 147) = 11.631$, $p < .01$. The expertise cue manipulation also appeared to be predictor of the manipulation check measure of perceived expertise, $F(1, 147) = 3.787$, $p = .056$. However, controlling for participants' worldview by adding the Attitudes About Reality scale as a covariate strengthened the relationship with perceived expertise, $F(2, 145) = 3.310$, $p = .039$. This result indicates that participants perceived the expertise cue to be an indicator of expertise, unless the participants had a relativist worldview. Indeed, in a follow-up regression the sign for the expertise cue was positive, while the sign for the Attitudes About Reality scale was negative. The expertise cue manipulation did not predict the measure of perceived credibility $F(1, 147) = < 1$, $p = .838$, but adding the Attitudes About Reality scale as a covariate produced a dramatic change, $F(2, 145) = 5.318$, $p = .006$.

The three dependent variables were regressed separately on the Need for Closure scale, but the scale was not a statistically significant predictor. Therefore, the scale was not used as a covariate in the tests of hypotheses.

Slope analysis

Three of the independent variables in this dissertation experiment were dichotomous, but worldview was a measured independent variable. Although it is common to dichotomize a continuous variable via a median split and follow analysis of variance procedures, the practice increases the standard error, making it more difficult to detect an interaction (Cohen, 1990; Irwin & McClelland, 2003). Multiple regression is a more effective method of assessing interactions when a continuous variable is involved because the continuous variable is retained in its original form (Aiken & West, 1991; Irwin & McClelland, 2001). Continuous variables are centered with a mean of 0, and factors can be entered using dummy codes or effect codes. Because effect coding does not introduce correlations, as does dummy coding, effect coding is the appropriate method of coding for assessing interaction effects (Aiken & West, 1991). Further, under effect coding each variable is compared to the grand mean, and not to any particular reference group, as with dummy coding. Thus, effect coding is useful for assessing the average effect of variables and their interactions. When one wishes to compare groups to one another, dummy coding is the preferred coding system.

By reversing the coding of a dummy-coded variable, one may focus the test on another variable of interest (Aiken & West, 1991; Irwin & McClelland, 2001). The slope of a variable is the coefficient of that variable when all the other variables are at 0. For example, the slope of worldview is the slope when mortality salience is equal to 0, that is, in the

control condition (i.e., when mortality salience is absent). By reversing the dummy codes in a second equation so that 0 = present instead of absent, the simple slope of worldview is the slope in the mortality salience condition (i.e., when mortality salience is present). The difference in the slopes of worldview in each of those two equations can be attributed, then, to the manipulation of mortality salience.

The tests of hypotheses, therefore, were conducted using effect coding, and post-hoc comparisons of experimental conditions were conducted using dummy coding. All four independent variables (mortality salience, worldview, argument quality, and expertise cue) and their interaction terms were entered into a simultaneous ordinary least squares regression equation. Worldview was centered with a mean of 0. One equation was calculated for each of the three dependent variables with an adjustment for the family-wise error rate. Comparisons of the regression results of effect coding and dummy coding are presented in Tables 5-7. Comparisons of the regression results of reverse coded variables, which are used in post-hoc probes, are presented in Tables 8-13. The regression results with standard errors and standardized coefficients are presented in Tables 14-16. In the results that follow, it should be stressed that post-hoc analyses of nonsignificant results, while informative, are necessarily tentative.

Tests of hypotheses

Before proceeding to the tests of the dissertation's hypotheses, the main effect of the argument quality and expertise cue manipulations was assessed.

Argument quality main effect

Tests of the main effect of argument quality revealed that the factor was a significant predictor of A_{brand}, $t(132) = 2.382$, $p < .05$, and behavioral intentions, $t(132) = 2.769$, $p < .01$, but not of A_{ad}. In each case the sign was positive.

A_{ad} = $b0 + b1$ x argument quality

A_{ad} = 4.508 + .109 A

A_{brand} = $b0 + b1$ x argument quality

A_{brand} = 4.490 + .277 A^{*}

BI = $b0 + b1$ x argument quality

BI = 4.514 + .404 A^{**}

$^{*} = p < .05$; $^{**} = p < .01$

Argument quality had a significant main effect on two of the three dependent variables. This pattern was evident also in subsequent tests of interactions involving argument quality.

Expertise cue main effect

Each of the tests of expertise cue in its effect on the dependent variables was nonsignificant. It should be noted that the sign was negative in each equation.

A_{ad} = $b0 + b1$ x expertise cue

A_{ad} = 4.508 + -.083 C

A_{brand} = $b0 + b1$ x expertise cue

A_{brand} = 4.490 + -.100 C

BI = $b0 + b1$ x expertise cue

BI = 4.514 + -.154 C

Although a check of the manipulation of the expertise cue approached the significance level of $p = .05$ and suggested that the cue was a positive predictor of perceived expertise, the expertise cue did not significantly influence the dependent variables and had a negative sign in each case. This pattern of results suggested that although the expertise cue resulted in greater perceptions of expertise, at least among participants who tended not to have a relativist worldview, the expertise cue did not have a significant overall influence on A_{ad}, A_{brand}, or behavioral intentions.

RQ1: Main effect of worldview

Worldview was a significant negative predictor for A_{ad}, $t(132) = -2.558$, $p < .05$, and behavioral intentions, $t(132) = -3.652$, $p < .01$, but not for A_{brand}.

A_{ad} = $b0 + b1$ x worldview

A_{ad} = 4.508 + -.458 W*

A_{brand} = $b0 + b1$ x worldview

A_{brand} = 4.490 + -.150 W

BI = $b0 + b1$ x worldview

BI = 4.514 + -.985 W**

* = $p < .05$; ** = $p < .01$

Thus, some evidence was found for the possibility that worldview might have a main effect on evaluations of the ads. The more relativist one's worldview was, the lower the evaluation of the ad and the likelihood that one would purchase or try the product. Figure 3

illustrates the main effect of worldview on each of the dependent variables, with the steepest negative slope for behavioral intentions and a nearly flat slope for A_{brand}.

It appeared that the main effects of worldview and argument quality focused on different targets, as worldview affected A_{ad}, but not A_{brand}, and argument quality predicted A_{brand}, but not A_{ad}. Both dependent variables were assessed via semantic differential scales, with A_{ad} having 18 items and A_{brand} having 13 items, so method-related variance between them should be expected to be minimal. Therefore, the independent variables were tested in a single equation with A_{ad} and A_{brand} as repeated-measures dependent variables. Neither the repeated measure factor $F(1, 41) = .022$ ($p = .822$), worldview $F(80, 41) = 1.256$ ($p = .214$), argument quality $F(1, 41) = .037$ ($p = .848$), nor their interaction $F(23, 41) = 1.104$ ($p = .381$) was significant. Thus, neither worldview nor argument quality was a significant predictor of both A_{ad} and A_{brand}.

H1: Worldview as a moderator of expertise cue

The tests of the interaction of worldview and expertise cue (W x C) were nonsignificant. Thus H1, was not supported. It appeared that worldview did not moderate the effect of the expertise cue.

A_{ad} = $b0$ + $b1$ x worldview + $b2$ x expertise cue + $b3$ x worldview x expertise cue

A_{ad} = 4.508 + -.458 W^{*} + -.083 C + -.154 W x C

A_{brand} = $b0$ + $b1$ x worldview + $b2$ x expertise cue + $b3$ x worldview x expertise cue

A_{brand} = 4.490 + -.150 W + -.100 C + .002 W x C

BI = $b0$ + $b1$ x worldview + $b2$ x expertise cue + $b3$ x worldview x expertise cue

$$BI = 4.514 + -.985\ W^{**} + -.154\ C + -.360\ W \times C$$

$^{*} = p < .05$; $^{**} = p < .01$

A post-hoc probe of the interaction for A_{ad} and A_{brand} also indicated that, all else being zero, worldview and an expertise cue interacted little, if at all. For behavioral intentions, however, the magnitude of the slope changed moderately. The simple slope of expertise cue -.614 (n.s.), declined by an additional -1.535 (n.s.) (Table 9) when the influence of a relativist worldview was added. That is, the expertise cue was associated with a lower likelihood of behavioral intentions, but this effect was much lower among participants who tended toward a relativist worldview. The nature of the interaction for each of the dependent variables in the control condition is depicted in Figures 4a, 5a, and 6a. The differences in the slopes when a cue is present or absent are larger for behavioral intentions and more modest for A_{ad}.

H2: Worldview as a moderator of argument quality

The tests of the interaction of worldview and argument quality (W x A) were nonsignificant. Thus H2, was not supported. It appeared that worldview did not moderate the influence of argument quality with regard to the dependent variables.

$$A_{ad} = b0 + b1 \times \text{worldview} + b2 \times \text{argument quality} + b3 \times \text{worldview} \times \text{argument quality}$$

$$A_{ad} = 4.508 + -.458\ W^{*} + .109\ A + -.143\ W \times A$$

$$A_{brand} = b0 + b1 \times \text{worldview} + b2 \times \text{argument quality} + b3 \times \text{worldview} \times \text{argument quality}$$

$$A_{brand} = 4.490 + -.150\ W + .386\ A^{*} + .067\ W \times A$$

BI = $b0$ + $b1$ x worldview + $b2$ x argument quality + $b3$ x worldview x argument quality

BI = 4.514 + -.985 W^{**} +.404 A^{**} + -.284 W x A

$^{*} = p < .05$; $^{**} = p < .01$

A post-hoc probe revealed a negligible difference in the slope of argument quality for A_{ad} and a modestly larger change in slope in predicting A_{brand}, but a quite larger change in predicting behavioral intentions. For A_{ad}, in which argument quality was not a significant predictor, the simple slope of worldview for A_{ad} changed little, from .136 (n.s.) when arguments were weak to .148 (n.s.) when arguments were strong (Table 7). For A_{brand}, in which argument quality, but not worldview, was a significant predictor, the simple slope of worldview changed from -.065 (n.s.) to .164 (n.s.), the difference being the slope of the (W x A) interaction coefficient, .228 (Table 8). For behavioral intentions, in which both worldview and argument quality were significant predictors, the slope of worldview changed from .775 (n.s.) to .019 (n.s.) (Table 9). This relationship can be viewed from the opposite perspective, which might be intuitively more explanatory. The slope for argument quality was .461 (n.s.) (Table 9), and the magnitude of the interaction term (W x A) was -.756 (n.s.), meaning that the slope changed from .461 to -.295 with the addition of a relativist worldview.

In general, strong arguments seemed to make an accessible worldview be more diagnostic in evaluating the ads. Thus, worldview appeared to moderate argument quality when both variables had a significant main effect. Figure 9a illustrates the clear change in slopes for strong and weak arguments in predicting behavioral intentions. The more relativist one's worldview was, the less persuasive the strong arguments were for getting that person to try the product. For A_{ad}, argument quality was not strong enough for its influence to be noticeably moderated by worldview. A modest change in slope is evident in Figure7a. For

A_{brand}, the influence of worldview was not strong enough to moderate argument quality, which is represented by the two flat lines in Figure 8a.

H3: Additivity, attenuation, and bias

The heuristic-systematic model predicts that when argument quality and expertise are congruent the effect of expertise cue is additive, meaning the cue should contribute to even more favorable evaluations than the quality of the argument alone. When the heuristic cue is incongruent with the systematic information, then the effect should be one of attenuation, wherein the argument reduces the effect of the cue. Tests of the interaction between argument quality and expertise cue (A x C) were nonsignificant, but post-hoc probes suggested that the expertise cue might have been ambiguous and that its valence was determined by the valence of the arguments with which the cue was paired.

A_{ad} = $b0$ + $b1$ x expertise cue + $b2$ x argument quality + $b3$ x expertise cue x argument quality

A_{ad} = 4.508 + -.083 C + .109 A + -.020 C x A

A_{brand} = $b0$ + $b1$ x expertise cue + $b2$ x argument quality + $b3$ x expertise cue x argument quality

A_{brand} = 4.490 + -.100 C + .277 A^{*} + .096 C x A

BI = $b0$ + $b1$ x expertise cue + $b2$ x argument quality + $b3$ x expertise cue x argument quality

BI = 4.514 + -.154 C + .404 A^{**} + -.115 C x A

$^{*} = p < .05$; $^{**} = p < .01$

It should be noted, again, that the sign of the slope of argument quality was positive, while in each test of the main effect of expertise cue the sign was negative, which suggests that the presence of the cue may not necessarily have led to a more favorable evaluation of

the ad. Thus, the joint effect of argument quality and the expertise cue, contrary to the prediction, should not be additive.

A post-hoc probe revealed that when arguments were strong, the presence of an expertise cue attenuated A_{ad} by -.134 (n.s.) (Table 7), but when arguments were weak, the presence of the cue attenuated A_{ad} even further, -.433 (n.s.). However, the relationship was clearer for A_{brand} and behavioral intentions, in which argument quality had a significant main effect. For A_{brand}, the slope for expertise cue was .285 (n.s.) (Table 8) when arguments were strong, but when arguments were weak, the slope fell to -.355 (n.s.), the difference being the coefficient for their interaction, -.640 (n.s.). A similar pattern emerged for behavioral intentions. When arguments were strong, the slope for expertise cue was .429 (n.s.) (Table 9), but when arguments were weak the slope was -.614 (n.s.). Graphs of the interaction in the control condition for each dependent variable are found in Figures 10a, 11a, and 12a. In Figure 10a, the minor difference between strong and weak arguments in predicting A_{ad} becomes more pronounced with the presence of an expertise cue. In Figures 11a and 12a, strong arguments clearly become stronger with the addition of an expertise cue, and weak arguments become markedly weaker when the cue is present.

To focus on the interaction from the opposite direction, one can examine the effect of the presence or absence of an expertise cue on strong arguments. For strong arguments, the presence of an expertise cue increased the slope of argument quality from -.042 (n.s.) to .253 (n.s.) in predicting A_{ad} (Table 7). For A_{brand}, in which argument quality was a significant predictor, the expertise cue increased the slope of argument quality from .121 (n.s.) to .761 (n.s.) (Table 8). For behavioral intentions, the cue boosted the slope from .461 (n.s.) to 1.504 ($p < .05$) (Table 9).

In sum, the effect of the expertise cue was additive for strong arguments but attenuating for weak arguments. This pattern of results suggests that the valence of the arguments biased the influence of the expertise cue. The interaction term is nonsignificant, of course, but the results seem to suggest that systematic processing can bias heuristic processing.

RQ2: Worldview as a moderator of the interaction of argument quality and expertise cue

A possible effect of worldview on the interaction of argument quality and expertise cue (W x A x C) was not statistically significant.

A_{ad} = $b0$ + $b1$ x worldview + $b2$ x argument quality + $b3$ x expertise cue + $b4$ x worldview x argument quality + $b5$ x worldview x expertise cue + $b6$ x argument quality x expertise cue + $b7$ x worldview x argument quality x expertise cue

A_{ad} = 4.508 + -.002 W + .109 A + -.083 C + -.143 W x A + -.154 W x C + -.020 A x C + .016 W x A x C

A_{brand} = $b0$ + $b1$ x worldview + $b2$ x argument quality + $b3$ x expertise cue + $b4$ x worldview x argument quality + $b5$ x worldview x expertise cue + $b6$ x argument quality x expertise cue + $b7$ x worldview x argument quality x expertise cue

A_{brand} = 4.490 + -.023 W + .277 A^{*} + -.100 C + .067 W x A + .002 W x C + .096 A x C + -.111 W x A x C

BI = $b0$ + $b1$ x worldview + $b2$ x argument quality + $b3$ x expertise cue + $b4$ x worldview x argument quality + $b5$ x worldview x expertise cue + $b6$ x argument quality x expertise cue + $b7$ x worldview x argument quality x expertise cue

BI = 4.514 + .091 W + .404 A^{**} + -.154 C + -.284 W x A + -.360 W x C + -.115 A x C + -.171 W x A x C

$^{*} = p < .05$; $^{**} = p < .01$

Post-hoc probes revealed that worldview became more diagnostic when the ads featured both a strong argument and an expertise cue than when the ads employed only one manipulation or neither. The simple simple slope of worldview was -.658 (n.s.) for A_{ad}, a marked difference from evaluations of ads containing an expertise cue alone, .061 (n.s.), or a strong argument alone, .148 (n.s.). The magnitude and direction suggest that the influence of a relativist worldview was stronger when the ads featured both a strong argument and an expertise cue. The interaction is illustrated in Figure 13. For A_{brand}, a similar, though less marked, effect was apparent, with the slope of worldview changing to -.342 (n.s.) from -.054 (n.s.) for an expertise cue alone or from .164 (n.s.) for strong arguments alone (Fig. 14). The most dramatic shift was detected for behavioral intentions (Fig. 15). The simple simple slope of worldview changed from .019 (n.s.) for ads containing a strong argument alone and from -.759 (n.s.) for ads featuring an expertise cue alone to -1.335 (p = .052) when both features were present.

RQ3: Main effect of mortality salience

Tests of the main effect of mortality salience were nonsignificant. Mortality salience was not expected to have a direct effect on the dependent variables, but rather as a moderator of other independent variables. Nevertheless, the possibility of a direct effect was assessed before proceeding with the subsequent tests.

$A_{ad} = b0 + b1 \times \text{mortality salience}$

$A_{ad} = 4.508 + -.002\ M$

$A_{brand} = b0 + b1 \times \text{mortality salience}$

$A_{brand} = 4.490 + -.023\ M$

$BI = b0 + b1 \times \text{mortality salience}$

$BI = 4.514 + .091\ M$

RQ4a: Mortality salience as a moderator of expertise cue

Tests of a possible 2-way interaction of mortality salience and an expertise cue (M x C) were nonsignificant. It appeared that making mortality salient did not appreciably moderate the influence of an expertise cue.

$A_{ad} = b0 + b1 \times \text{mortality salience} + b2 \times \text{expertise cue} + b3 \times \text{mortality salience} \times \text{expertise cue}$

$A_{ad} = 4.508 + -.002\ M + -.083\ C + .060\ M \times C$

$A_{brand} = b0 + b1 \times \text{mortality salience} + b2 \times \text{expertise cue} + b3 \times \text{mortality salience} \times \text{expertise cue}$

$A_{brand} = 4.490 + -.023\ M + -.100\ C + -.082\ M \times C$

$BI = b0 + b1 \times \text{mortality salience} + b2 \times \text{expertise cue} + b3 \times \text{mortality salience} \times \text{expertise cue}$

$BI = 4.514 + .091\ M + -.154\ C + -.108\ M \times C$

$^{*} = p < .05$; $^{**} = p < .01$

Post-hoc probes of the relationship suggested, however, that mortality salience may have influenced the effect of the expertise cue, changing the valence from a negative direction to a positive direction for A_{ad} and behavioral intentions, both equations, incidentally, in which worldview had a significant main effect. For A_{ad}, the valence of the cue was reversed, as the simple slope changed from -.432 (n.s.) (Table 7) in the control condition to .180 (n.s.) in the mortality salience condition, a difference of .613 (n.s.). For behavioral intentions, likewise, the slope for the cue changed from -.614 (n.s.) (Table 9) to .458 (n.s.), a difference of 1.072 (n.s.). For A_{brand}, however, the change in slope was quite modest, from -

.355 (n.s.) to -.427 (n.s.) (Table 8). The nonsignificant interaction of mortality salience and expertise cue, given a weak argument (A = 0) it their influence on A_{ad} is illustrated in Figure 16. The parallel lines in Figure 17 demonstrate the lack of an interaction in predicting A_{brand}, while Figure 18 illustrates their relationship in predicting behavioral intentions.

The accessibility of worldview may have mediated the influence of mortality salience on the expertise cues, as the larger and positive changes occurred only in the equations in which worldview had a significant main effect. This possibility was be explored in H5.

RQ4b: Mortality salience as a moderator of argument quality

Tests of a possible 2-way interaction of mortality salience and argument quality (M x A), likewise, were nonsignificant. It appeared that making mortality salient did not appreciably moderate the influence of the arguments employed.

A_{ad} = $b0$ + $b1$ x mortality salience + $b2$ x argument quality + $b3$ x mortality salience x argument quality

A_{ad} = 4.508 + -.002 M +.109 A + .057 M x A

A_{brand} = $b0$ + $b1$ x mortality salience + $b2$ x argument quality + $b3$ x mortality salience x argument quality

A_{brand} = 4.490 + -.023 M +.386 A^{*} + .056 M x A

BI = $b0$ + $b1$ x mortality salience + $b2$ x argument quality + $b3$ x mortality salience x argument quality

BI = 4.514 + .091 M +.404 A^{**} + -.087 M x A

$^{*} = p < .05$; $^{**} = p < .01$

Post-hoc probes of the relationship suggested, however, that making mortality salient may have resulted in an increase in systematic processing. For A_{ad}, the simple slope of argument quality changed from -.042 (n.s.) in the control condition to .559 (n.s.). For A_{brand},

the slope changed from .121 (n.s.) to .603 (n.s.), while for behavioral intentions, the change in the simple slope was more dramatic, shifting from .461 (n.s.) to 1.614 ($p < .01$) in the mortality salience condition.

It seems that participants scrutinized the arguments more carefully when the participants' mortality was made salient. Figures 19, 20, and 21 illustrate the relationship between mortality salience and argument quality when no expertise cue is present. This pattern of results also mirrors the effect of high involvement on processing. Although this pattern will be discussed in Chapter 4, it bears noting at this point that this pattern of nonsignificant results is inconsistent with studies that found that mortality salience induction results in increased heuristic-type processing but not increased systematic-type processing.

RQ5: Mortality salience as a moderator of the interaction of argument quality and expertise cue

The possible influence of mortality salience as a moderator of the argument quality-expertise cue relationship (M x A x C) was tested. The interaction was a significant predictor of behavioral intentions ($t = -2.578$, $p < .05$), suggesting that mortality salience may have moderated the interaction of argument quality and expertise cue. Thus, partial support for RQ5 was found.

A_{ad} = $b0$ + $b1$ x mortality salience + $b2$ x argument quality + $b3$ x expertise cue + $b4$ x mortality salience x argument quality + $b5$ x mortality salience x expertise cue + $b6$ x argument quality x expertise cue+ $b7$ x mortality salience x argument quality x expertise cue

A_{ad} = 4.508 + -.002 M + .109 A + -.083 C +.057 M x A + .060 M x C + -.020 A x C + -.093 M x A x C

A_{brand} = $b0$ + $b1$ x mortality salience + $b2$ x argument quality + $b3$ x expertise cue + $b4$ x mortality salience x argument quality + $b5$ x mortality salience x

expertise cue + $b6$ x argument quality x expertise cue+ $b7$ x mortality salience x argument quality x expertise cue

A_{brand} = 4.490 + -.023 M + .277 A* + -.100 C + .056 M x A + -.082 M x C + .096 A x C + -.064 M x A x C

BI = $b0$ + $b1$ x mortality salience + $b2$ x argument quality + $b3$ x expertise cue + $b4$ x mortality salience x argument quality + $b5$ x mortality salience x expertise cue + $b6$ x argument quality x expertise cue+ $b7$ x mortality salience x argument quality x expertise cue

BI = 4.514 + .091 M + .404 A** + -.154 C + -.087 M x A + -.108 M x C + -.115 A x C + -.376 M x A x C*

$^{*} = p < .05$; $^{**} = p < .01$

In the earlier section on additivity and attenuation, it was noted that argument quality appeared to have biased the valence of the expertise cue such that the cue made strong arguments stronger and weak arguments weaker, as depicted in Figures 10a, 11a, and 12a. This phenomenon disappeared, however, when mortality was made salient (Figs. 10b, 11b, and 12b). For strong arguments, the slope of the expertise cue was .285 (n.s.) in predicting A_{brand}, but the cue was additive for strong arguments only when mortality was not salient. When mortality was salient, the slope of the expertise cue declined to -.302 (n.s.). A similar effect was found for behavioral intentions. When arguments were strong, the slope of the expertise cue was .429 (n.s.), but the slope of expertise cue changed to -1.506 ($p < .05$) when mortality was salient. The same phenomenon was detected to a lesser degree for A_{ad}, in which argument quality did not have a significant main effect. The slope changed from -.137 (n.s.) to -.271 (n.s.) when mortality was salient.

From the opposite perspective, that of the effect of the presence (absence) of an expertise cue on strong arguments, the cue's qualities in the control condition vanished in the mortality salience condition. Worldview (which was centered with a mean of 0) was not a

part of the equation, but for dependent variables on which, incidentally, worldview had a significant main effect (i.e., A_{ad} and behavioral intentions), the presence of an expertise cue attenuated the slope of argument quality, from .559 (n.s.) to .107 (n.s.) for A_{ad} and from 1.614 ($p < .05$) to -.349 (n.s.) for behavioral intentions. The cue was modestly additive for A_{brand}, from .603 (n.s.) to .729 (n.s.), but the difference in slopes (.126) was considerably less than the difference in the control condition (.761 - .121 = .640).

Thus, the diagnosticity of argument quality for the expertise cue (which was discussed under *Additivity, attenuation, and bias*) appeared to have varied according to participants' primary motivation. Under a presumed accuracy motivation, argument quality seemed to be diagnostic, but under a nonconscious defense motivation it was not, when other inputs (including, possibly, worldview) likely were deemed more applicable.

H4: Mortality salience as a moderator of the accessibility of worldview

The interaction between mortality salience and worldview (M x W) was significant for A_{ad}, $t(132) = -2.122$, $p < .05$, and behavioral intentions, $t(132) = -2.448$, $p < .05$, but not for A_{brand}. These results provide partial support for H4, namely, that mortality salience moderated the influence of worldview.

A_{ad} = $b0$ + $b1$ x mortality salience + $b2$ x worldview + $b3$ x mortality salience x worldview

A_{ad} = 4.508 + -.002 M + -.458 W^{*} + -.380 M x W^{*}

A_{brand} = $b0$ + $b1$ x mortality salience + $b2$ x worldview + $b3$ x mortality salience x worldview

A_{brand} = 4.490 + -.023 M +-.150 W + -.076 M x W

BI = $b0$ + $b1$ x mortality salience + $b2$ x worldview + $b3$ x mortality salience x worldview

BI = 4.514 + .091 M +-.985 W^{**} + -.660 M x W^{*}

$^{*} = p < .05$; $^{**} = p < .01$

A probe of the significant interaction in A_{ad} revealed that in the control condition the coefficient for worldview was .136 (n.s.) (Table 7), which changed to -.428 (n.s.) when mortality became salient. Their difference is represented in the slope for the interaction term, -.564 (n.s.), and a graph of the slopes is displayed in Figure 22. For behavioral intentions, the coefficient for worldview when mortality was not salient was .775 (n.s.) (Table 9), but when mortality was salient the coefficient was -1.800 ($p < .05$). The interaction is displayed in Figure 24. For A_{brand}, the phenomenon was not evident, which is represented by the flat slopes in Figure 23.

It seemed that making mortality salient may have increased the accessibility of participants' worldview, which, in turn, could have moderated the effect of other variables. This possibility is tested in H5 and H6.

H5: 3-way interaction of mortality salience, worldview, and expertise cue

It was predicted that mortality might moderate of interaction of worldview and expertise cue, but the tests of the 3-way interaction among mortality salience, worldview, and an expertise cue (M x W x C) were nonsignificant. Thus H5, was not supported.

A_{ad} = $b0$ + $b1$ x mortality salience + $b2$ x worldview + $b3$ x expertise cue + $b4$ x mortality salience x worldview + $b5$ x mortality salience x expertise cue + $b6$ x worldview x expertise cue + $b7$ x mortality salience x worldview x expertise cue

A_{ad} = 4.508 + -.002 M + -.458 W^{*} + -.083 C + -.380 M x W^{*} + .060 M x C + .154 W x C + .067 M x W x C

A_{brand} = $b0$ + $b1$ x mortality salience + $b2$ x worldview + $b3$ x expertise cue

+ $b4$ x mortality salience x worldview + $b5$ x mortality salience x expertise cue + $b6$ x worldview x expertise cue + $b7$ x mortality salience x worldview x expertise cue

A_{brand} = 4.490 + -.023 M + -.150 W + -.100 C + -.076 M x W + -.082 M x C + .002 W x C + .126 M x W x C

BI = $b0$ + $b1$ x mortality salience + $b2$ x worldview + $b3$ x expertise cue + $b4$ x mortality salience x worldview + $b5$ x mortality salience x expertise cue + $b6$ x worldview x expertise cue + $b7$ x mortality salience x worldview x expertise cue

BI = 4.514 + .091 M + -.985 W + -.154 C + -.660 M x W* + -.108 M x C + -.360 W x C + .362 M x W x C

$^{*} = p < .05$; $^{**} = p < .01$

Because the 2-way interaction of mortality salience and worldview was significant, this 3-way interaction was followed up with post-hoc probes. For A_{ad}, the 2-way interaction between worldview and an expertise cue was -.075 (n.s.) (Table 7), but when mortality was made salient, the term was -.604 (n.s.). Thus, in the control condition the simple simple slope of worldview when a cue was absent changed from .136 (n.s.) to .061 (n.s.) when the cue was present. In the mortality salience condition, however, when worldview presumably was more accessible, the slope changed from -.428 when the cue was absent to -1.031 ($p < .05$) when the cue was present. The 3-way interaction is depicted in Figure 25. This suggests that worldview, when made more accessible, influenced the evaluation of expertise cues. The 2-way interaction of worldview and an expertise cue assessed in H1 was the slope of the interaction when mortality was not salient.

For A_{brand}, in which worldview was not a significant predictor, the coefficient of the interaction of worldview and expertise cue changed from .011 (n.s.) (Table 8) in the control condition to .444 (n.s.) in the mortality salience condition. Thus, in the control condition the simple simple slope of worldview when a cue was absent changed negligibly, from -.065

(n.s.) to -.054 (n.s.), when the cue was present. In the mortality salience condition, however, the slope changed from -.597 (n.s.) when the cue was absent to -.152 (n.s.) when the cue was present. The slopes in Figure 26 illustrate the relationship.

For behavioral intentions, in which worldview was a significant predictor and the worldview-mortality salience interaction was significant, the term for the interaction of worldview and expertise cue changed from -1.535 (n.s.) (Table 9) in the control condition to .779 (n.s.) in the mortality salience condition, the difference being equivalent to -2.314, the slope of the 3-way interaction. In the control condition, then, the simple simple slope of worldview when a cue was absent changed from .775 (n.s.) to -.759 (n.s.), when the cue was present. In the mortality salience condition the slope changed from -1.800 ($p < .05$) when the cue was absent to -1.021 (n.s.) when the cue was present, as illustrated in Figure 27.

The simple slope of expertise cue, independent of worldview, changed little from the control condition to the mortality salience condition, which suggests that the change in the interaction term stemmed from mortality salience making participants' worldview more accessible, and not from any direct effect of mortality salience on the expertise cue.

H6: 3-way interaction of mortality salience, worldview, and argument quality

It was predicted also that mortality salience might moderate the interaction of worldview and argument quality, but tests of a 3-way interaction among mortality salience, worldview, and argument quality (M x W x A) were nonsignificant. Thus, H6 was not supported.

$$A_{ad} = b0 + b1 \times \text{mortality salience} + b2 \times \text{worldview} + b3 \times \text{argument quality} + b4 \times \text{mortality salience x worldview} + b5 \times \text{mortality salience x argument quality} + b6 \times \text{worldview x argument quality} + b7 \times \text{mortality salience x worldview x argument quality}$$

A_{ad} = 4.508 + -.002 M + -.458 W^{*} + .109 A + .057 M x A + -.380 M x W^{*} + -.143 W x A + .034 M x W x A

A_{brand} = *b*0 + *b*1 x mortality salience + *b*2 x worldview + *b*3 x argument quality + *b*4 x mortality salience x worldview + *b*5 x mortality salience x argument quality + *b*6 x worldview x argument quality + *b*7 x mortality salience x worldview x argument quality

A_{brand} = 4.490 + -.023 M + -.150 W + .277 A^{*} + -.076 M x W + .056 M x A + .067 W x A + .082 M x W x A

BI = *b*0 + *b*1 x mortality salience + *b*2 x worldview + *b*3 x argument quality + *b*4 x mortality salience x worldview + *b*5 x mortality salience x argument quality + *b*6 x worldview x argument quality + *b*7 x mortality salience x worldview x argument quality

BI = 4.514 + .091 M + -.985 W^{**} + .404 A^{**} + -.660 M x W^{*} + -.087 M x A + -.284 W x A + .049 M x W x A

$^{*} = p < .05$; $^{**} = p < .01$

Because mortality salience was shown to moderate the influence of worldview, a post-hoc probe of the possible effect of mortality salience on the 2-way interaction of worldview and argument quality was conducted. When mortality was not salient, the slope of the 2-way interaction was .012 (n.s.) (Table 7), but when mortality was salient the coefficient was -.649 (n.s.). Thus, in the control condition the simple simple slope of worldview given weak arguments changed from .136 (n.s.) to .148 (n.s.) when arguments were strong. In the mortality salience condition, however, when worldview presumably was more accessible, the slope changed from -.428 when arguments were weak to -1.076 ($p < .05$) when arguments were strong (Fig. 28). This suggests that making mortality salient may have increased the accessibility of worldview, which, in turn, influenced the relationship between worldview and argument quality in their effect on A_{ad}.

For A_{brand}, the interaction term increased from .228 (n.s.) to .485 (n.s.) (Table 8). In the control condition, then, the simple simple slope of worldview when arguments were weak changed from -.065 (n.s.) to .164 (n.s.) when arguments were strong, and in the mortality salience condition the slope changed from -.597 (n.s.) when arguments were weak to -.112 (n.s.) when arguments were strong (Fig. 29). Because worldview was not a significant predictor of A_{brand}, the change in slopes likely came from the influence of mortality salience on argument quality. Indeed, the simple slope of argument quality increased from .121 (n.s.) in the control condition to .603 (n.s.) in the mortality salience condition. This apparent effect of mortality salience on argument quality suggests that mortality salience may have led to a nonconscious defense motivation, which, in turn, could have resulted in increased systematic processing.

For behavioral intentions, in which both worldview and argument quality were significant predictors, the interaction term changed from -.756 (n.s.) (Table 9) in the control condition to .305 (n.s.) in the mortality salience condition. When arguments were weak, the simple simple slope of worldview changed from .775 (n.s) in the control condition to -1.800 ($p < .05$) in the mortality salience condition. Likewise, given strong arguments, the slope of worldview declined from .019 (n.s.) to -1.495 ($p < .05$) when mortality was made salient (Fig. 30). Systematic processing seems to have increased, too, as the simple slope of argument quality increased from .461 (n.s.) in the control condition to 1.614 ($p < .01$) in the mortality salience condition. This change is due likely to the both the increased accessibility of participants' worldview in the mortality salience condition and well as to an increase in systematic processing. This pattern of results suggests that mortality salience may have led to an increase in both systematic and heuristic processing.

Summary of results

The more relativist one's worldview was, the more critical one was of the ad and the less likely one was to purchase or try the advertised product. As a main effect, worldview was chronically accessible, but worldview was not a significant predictor of participants' attitudes toward the brand itself. This pattern contrasted with the main effect of argument quality, which was a significant positive predictor of attitudes toward the brand and behavioral intentions but not of participants' attitudes toward the ads touting the product. In line with the pattern of the main effect of worldview, a significant two-way interaction of worldview and mortality salience predicted A_{ad} and behavioral intentions but not A_{brand}. The magnitude of the negative slope of worldview grew when participants' mortality was made salient. Thus, mortality salience seems to have increased the accessibility of participants' worldview, leading them to be even more critical of the ad and reporting being even less likely to try the advertised product. These three significant patterns of results formed the foundation of the tentative but nonsignificant results that followed.

It was discovered that the valence of the expertise cue depended on the input that was deemed diagnostic for evaluating the cue. Argument quality seemed to be diagnostic for determining the valence of the cue. When arguments were strong, the cue had an additive effect, but when arguments were weak the cue was ascribed a negative valence. That is, the cue had a negative effect when arguments were weak. Although this effect was clear for A_{brand} and behavioral intentions, in which argument quality was a significant predictor, the effect was more qualified for A_{ad}, in which worldview was a significant predictor. When arguments were strong, the cue was less negative than when arguments were weak. When mortality salience made participants' worldview more accessible, however, this effect

disappeared altogether, as the worldview appeared to be more diagnostic for evaluating the cue.

If worldview was a source of heuristics that was used in the evaluations, then mortality salience seemed to have led to an increase in heuristic processing. Mortality salience also appeared to cause an increase in systematic processing. Compared to the control condition, strong arguments resulted in more positive evaluations and weak arguments led to more negative evaluations. Thus, mortality salience appeared to result in an increase in both heuristic and systematic processing.

Worldview did not interact with the expertise cue in a statistically significant manner. However, when the presumed accessibility of worldview was increased via mortality salience, worldview seemed to become diagnostic for the cue, $b = -1.031$ ($p < .05$) in predicting A_{ad}.

Worldview did not interact with argument quality in a statistically significant manner, either. Indeed, each of those variables, worldview and argument quality, seemed to have independent influence on either A_{ad} or A_{brand}, but not both. Behavioral intentions was the only dependent variable on which both variables had a significant main effect, and an analysis of their slopes suggested that the variables may have interacted.

Chapter IV

Discussion

Purpose and goals

This dissertation's primary unique contribution was the introduction of worldview and a demonstration of the insight the construct can bring to traditional persuasion research. This dissertation also contributed to progress toward a fuller understanding of existing theories of communication and social psychology and explored points of connection.

People have different ways of making sense of what they experience, and researchers can gain greater insight into human behavior by understanding how people interpret the world around them. Differences in how people process information can influence how they communicate and how they respond to persuasive messages. This dissertation undertook to test the possibility that a person's worldview could influence the way he or she processes an ad. In addition, making mortality salient might change they way people process information and lead to an increased reliance on one's worldview when evaluating persuasive messages such as ads.

The dissertation also sought to explore a possible theoretical link between the heuristic-systematic model and terror management theory, namely, that a mortality salience induction might lead people to process information defensively. This nexus might illuminate persuasion process and provide greater insight into how people are persuaded and why they might be resistant to persuasion efforts.

An experimental examination of these fundamental issues should examine characteristics of a persuasive message (O'Keefe, 2003) as well as characteristics of the audience (Oliver, 2002). In this dissertation, two of the four independent variables (argument quality and expertise cue) were properties of the persuasive message, while the other two variables (worldview and mortality salience) concerned the person who encountered the message. The interrelationship of four independent variables drawn from several theoretical fields was complex, but that complexity is sometimes necessary if one wishes to gain a more comprehensive and nuanced understanding of media effects and how these variables might act in concert. The research presented here adds to the body of traditional persuasion research, given that some of these variables—and particularly the interplay between and among them—have not previously received focal attention in a comprehensive manner.

Interpretation of findings

This dissertation identified three significant findings. A person's worldview can be a significant predictor of how a persuasive message is processed. Further, the influence of one's worldview can be moderated by making mortality salient. This dissertation also discovered separate main effects for worldview and argument quality in predicting attitudes.

Feldman (1999) and Feldman and Lynch (1988) provide a useful explanatory framework for interpreting the results of this dissertation. Rather than focusing on independent variables or their effects, the framework comprises four processes: accessibility, diagnosticity, motivation, and capacity. Accessibility refers to the availability of a given type of a person's knowledge at a particular time, and that knowledge may be chronically or

temporarily accessible. Diagnosticity refers to the relevance of that knowledge to another construct of interest [Chen and Chaiken (1999) used "available" to denote the idea of accessible heuristics and "applicable" to refer to heuristics that were considered diagnostic]. Motivation is held to have a directive and energizing character in focusing resources and can have varying levels of intensity. Capacity refers to an individual's attentional resources in a given situation. For a cultural stereotype to be applied in a given situation, for example, the stereotype must be accessible within an observer, the stereotype must be deemed relevant, or diagnostic, to a particular target that the observer views, the observer must be motivated to characterize the target, and the observer must have had sufficient practice for the stereotype to be applied easily.

This dissertation defined worldview primarily as a chronically accessible set of assumptions about the world. However, it appears that mortality salience may have increased the influence of worldview temporarily so that participants' worldview was used to evaluate the ads. Following Feldman (1999) and Feldman and Lynch (1988), then, participants' cognitive processes appeared to occur in the following sequence: *motivation* led to *accessibility*, which led to *diagnosticity*. That is, making mortality salient induced anxiety and a nonconscious defense motivation among participants who viewed the ads. That anxiety increased the accessibility of participants' worldview, which was applied in evaluating the cues and arguments in the ads. This possible explanation for the interaction effect will be described in more detail subsequently. In the Feldman and Lynch process framework, the *capacity* for a particular type of heuristic thought, or worldview, like other types of knowledge structures that operate across contexts, is presumed to have been developed

previously by repeated long-term practice (Feldman, 1999; Feldman & Lynch, 1988). A worldview, like values and dispositions, would develop as part of daily experience.

Worldview

RQ1 sought to assess the main effect of participants' worldview on their evaluations of ads. A relativist worldview had a significant main effect on A_{ad} and behavioral intentions in a negative direction. All else equal, participants who had a more relativist worldview tended to be less likely to have a favorable evaluation of an ad and less likely to purchase or try the advertised product. Thus, a person's worldview appears to be an important factor in predicting the effectiveness of persuasive messages such as ads. This effect demonstrated that persuasive messages can be interpreted in different ways, depending on a person's worldview. A message that generates a favorable attitude among people who hold a traditionalist worldview might generate an unfavorable attitude among people whose worldview is more relativist.

As an individual difference variable, therefore, the construct of worldview appears to yield insight into understanding information processing. Along with personality, gender, ethnicity, (Oliver, 2002), an appreciation of the role of worldview may help scholars understand how media messages can have different effects on people. Persuasive messages that are congruent with one's personality type and self-concept have been shown to be more effective than messages that are incongruent (Wheeler, Petty, & Bizer, 2005). Consistent with that finding, then, messages that match one's worldview seem to be better regarded, as well.

As a lens that filters what one sees, it appears that a participant's worldview shaped the way the ads were perceived. A relativist worldview was associated generally with a more unfavorable evaluation of the ads, regardless of whether the ads contained strong or weak arguments or whether the ads featured an expertise cue or no cue. This stance toward the ads likely resulted from a conviction that many truth claims are inherently suspect. Because people with a relativist worldview tend to discount the possibility of unbiased and objective knowledge, participants with a relativist worldview had less favorable attitudes toward the message and its claims. This is consistent with the pattern of finding significant results for A_{ad} and behavioral intentions but not for A_{brand}. The core constructs of a relativist worldview regarding truth and certainty were deemed relevant to forming an attitude concerning the message itself but were not diagnostic in forming an attitude concerning the product that was being promoted.

It bears noting that the arguments and brands used in this experiment were adapted from materials used in previous studies of persuasion, and the addition of worldview to those studies as an individual difference variable might increase the amount of variance explained. Worldview can be incorporated as a dispositional variable along with the message-based variables of argument quality and cues to aid researchers in gaining a greater understanding of media effects. The ads from which the arguments were drawn manipulated a celebrity cue, not expertise, so in future research it would be uncertain how a relativist worldview might influence the effect of a celebrity cue or several other cues used in earlier persuasion research.

In addition to finding support for the idea that worldviews function as a filter on the way persuasive messages are interpreted, this dissertation contributed to the explication of the theoretical construct of worldview. Worldview was defined primarily as dispositional and

chronically accessible, but the results suggest that the degree of its influence on information processing can be heightened or attenuated. A defense motivation, for example, may temporarily make a person's worldview even more accessible in a given situation. Because there was a significant main effect, worldview appeared to be chronically accessible, and because there was a significant 2-way interaction with mortality salience (as discussed later), it seems that the accessibility of worldview can be varied temporarily, as well.

Worldview and argument quality affected different dependent variables

Participants appeared to make a distinction between a particular product and the ad that promoted the product. Argument quality failed to predict A_{ad} while being a significant predictor of A_{brand} and behavioral intentions. Worldview, on the contrary, failed to predict A_{brand} but was a significant predictor of A_{ad} and behavioral intentions. When both A_{ad} and A_{brand} were entered into the same equation as repeated measures, neither argument quality nor worldview predicted both variables. Thus, argument quality and worldview predicted different, though related, constructs. A relativist worldview seemed to be more pertinent to evaluation of the communication, while arguments were more properly connected to the brand. This finding is consistent also with the persuasion knowledge model, which posits that people seek to hold attitudes that are valid not only regarding the topic at hand but also regarding the communicator. This dissertation did not test this possibility, but the pattern of results seems to support the idea that participants' A_{ad} primarily concerned the communicator and A_{brand} primarily concerned the topic or product. Thus, worldview was more applicable in forming an attitude toward the persuasive message, and argument quality was more diagnostic in forming an attitude toward the advertised product itself. This finding supports

the premise in the persuasion knowledge model that people seek to hold valid attitudes about both the communicator and the topic of the message.

What is unclear however, is the net effect of a relativist worldview and argument quality. Indeed, argument quality was a significant positive predictor of behavioral intentions, while a relativist worldview was a significant negative predictor. If the upper end of the worldview measure indicates a relativist worldview and the lower end indicates a traditionalist worldview, then strong arguments should be even more effective among people who hold a traditionalist worldview in predicting behavioral intentions. Thus, the joint effect of strong arguments and traditional worldview would be additive.

To caution against committing a Type II error, it should be noted that the finding of separate effects does not mean that argument quality had no effect on A_{ad} or that worldview had no effect on A_{brand}. It could be that argument quality and worldview had weak effects that were not strong enough to be detected.

Mortality salience

RQ3 sought to assess what direct effect mortality salience might have on the evaluation of the ads. No evidence of a direct effect was found. H1 predicted that mortality salience would moderate the influence of worldview. The interaction of worldview and mortality salience was statistically significant in predicting A_{ad} and behavioral intentions. Based on terror management theory, it was predicted that making mortality salient would make participants' worldview more accessible. And, indeed, it appeared that making mortality salient increased the accessibility of participants' worldview in evaluating the ads and reporting behavioral intentions. The interaction suggests that the accessibility of a

chronically accessible worldview can be heightened. Consistent with terror management theory, making mortality salient led to an increased reliance on one's worldview. Participants who tended toward a relativist worldview appeared to become even more relativist in evaluating the ads and reporting behavioral intentions, while those participants who tended to be traditionalist seemed to become more traditionalist.

The interaction between mortality salience and worldview suggests that an increase in anxiety associated with mortality salience served to increase heuristic processing. One's worldview served as a heuristic that participants would employ in evaluating the ads. The habitual inferences associated with a worldview seemed to exert a greater influence in attitude formation among participants who were aware of their own mortality. If worldview is a source of heuristics, then a defense motivation resulted in a greater degree of heuristic processing, resulting in attitudes consistent with one's worldview.

While mortality salience was not a statistically significant moderator of argument quality or expertise cue (RQ4), it seems that the manipulation may have had an effect on participants' processing modes. Mortality salience led to anxiety, which may have led both to an increase in systematic processing and to more heuristic processing, especially with regard to participants' worldview. Greater attention to argument quality is an indicator of systematic processing. In the mortality salience condition, strong arguments were judged stronger, and weak arguments were judged weaker, than in the control condition. This possible relationship between mortality salience and argument quality mirrors that of involvement and argument quality in other studies (e.g., Petty et al., 1983). In studies manipulating involvement, inducing greater involvement results in greater scrutiny of the arguments so that, compared to

the low-involvement condition, strong arguments are deemed stronger, and weak arguments are considered to be weaker.

That pattern of results in this dissertation was nonsignificant, however, and it should be tempered further by noting that other research has found that mortality salience increases heuristic-type processing, but not systematic-type processing. Mortality salience affected how participants responded to a threat to their cultural worldview when they were engaged in an experiential and associative mode of processing. However, when participants were asked to take a rational-analytic stance, the effects of mortality salience disappeared (Simon et al., 1997).

Mortality salience may have led to an increase in heuristic processing, as well, as suggested by the relationship of mortality salience, worldview, and expertise cue (H5), in which the possible moderating influence of worldview on the expertise cue appeared to be stronger in the mortality salience condition than in the control condition.

Worldview as a moderator of an expertise cue

H3 tested the prediction that worldview would moderate the effect of the expertise cue. Worldview was not found to be a statistically significant moderator of participants' perceptions of the expertise cue. The 2-way interaction of worldview and expertise cue tested in H3 was the slope of the interaction when mortality was not salient. However, post-hoc probes of H6—which tested the 3-way interaction of mortality salience, worldview, and expertise cue—detected a possible 3-way relationship that could be interpreted as an extension of the 2-way interaction between mortality salience and worldview. That is, mortality salience seemed to moderate the relationship between worldview and expertise cue.

The mortality salience induction seemed to make participants' worldview more accessible, and when their worldview was accessible, the slope for the worldview-cue interaction changed, while the slope of the simple effect of the expertise cue remained relatively unchanged. This pattern of results suggests that participants' worldview, when made sufficiently accessible, moderated the way the expertise cue was perceived.

That the simple effect of expertise cue changed little from the control condition to the mortality salience condition suggests that the change in the interaction term stemmed from mortality salience making participants' worldview more accessible. If the simple slope of the expertise cue had changed, then that would suggest that making mortality salient led participants to evaluate the cue differently for some other reason. Thus, the 2-way interaction of worldview and expertise cue that was tested in H3 was not significant because worldview may not have been accessible enough to be diagnostic.

Worldview as a moderator of argument quality

H2 tested the prediction that worldview would moderate the effect of argument quality. Worldview was not a statistically significant moderator of the arguments for any of the dependent variables. However, this null result, like the nonsignificant interaction of worldview and expertise cue, might have occurred because worldview was not sufficiently accessible. Post-hoc probes found little change for A_{ad} and A_{brand}, but the larger change in the slope for behavioral intentions serves as a caution against making a Type II error. Both argument quality and worldview had main effects in predicting behavioral intentions, and the change in slope suggests that worldview might moderate argument quality if both main effects are strong enough.

Further, the influence of mortality salience on the 2-way interaction of worldview and argument quality (H6) suggests that mortality salience might have increased the accessibility of worldview, which, in turn, influenced the relationship between worldview and argument quality in their effect on behavioral intentions. For A_{ad}, mortality salience appeared to change the relationship modestly. For A_{brand}, worldview was not a significant predictor, and the 3-way interaction changed little from the 2-way interaction, in which mortality salience appeared to moderate the influence of strong arguments.

Theoretical Implications

Heuristic-Systematic Model

The results of this dissertation contribute toward a better understanding of dual-path models of persuasion. One key distinction between the heuristic-systematic model and other dual-process accounts of persuasion such as the elaboration likelihood model, is that heuristic and systematic processing are held to co-occur. This model has been expanded with the proposal of three hypotheses—additivity, attenuation, and bias—and three different motivations for processing messages—accuracy, impression, and defense (Chen & Chaiken, 1999). Relatively little research has explored the impression and defense motivations. Even less has been written about possible effects of the different motivations on additivity, attenuation, or bias.

The results of this dissertation suggest that one's motivation can alter the relationships predicted by additivity, attenuation, and bias and are consistent with the explanation that a defense motivation resulted in an increase in both systematic processing

and heuristic processing. Based on the heuristic-systematic model, this dissertation predicted the combined effect of strong arguments and an expertise cue would be greater than either factor alone. Argument quality was a significant positive predictor of A_{brand} and behavioral intentions, but the main effect of the expertise cue was nonsignificant, and the sign was negative. Although the sign of the main effect of the expertise cue was negative, it should be noted that the manipulation check of the expertise cue suggested that the cue resulted in an increase in perceived expertise. This difference can be explained with the addition of worldview as a covariate to the equation of the manipulation check. Expertise cue was a positive predictor and worldview was a negative predictor of perceived expertise.

Because the sign of argument quality was positive and the sign of the expertise cue was negative, however, their joint effect should not be expected to be additive. However, for strong arguments, the effect of the expertise cue was additive in predicting a favorable attitude, while for weak arguments the cue contributed to an even more unfavorable attitude. That is, an expertise cue made strong arguments stronger and weak arguments weaker. The quality of the arguments biased the interpretation of the expertise cue, or in other words, the quality of the arguments was diagnostic for determining the valence of the expertise cue. Thus, the diagnosticity of argument quality was contingent on the accessibility of alternative inputs (Feldman & Lynch, 1988) such as worldview.

It seemed that the effect found in this dissertation disappeared, though, when mortality was salient, as argument quality was no longer diagnostic for the expertise cue. Making mortality salient appeared to have influenced both systematic and heuristic processing and also influenced the patterns that would be predicted by the HSM bias hypothesis. Apparently, mortality salience made participants' worldview more accessible,

which in turn became more diagnostic in interpreting the cue. Thus, given a presumed accuracy motivation, argument quality was diagnostic for interpreting the expertise cue, but given a nonconscious defense motivation induced by mortality salience, worldview was more diagnostic.

The possibility that argument quality was diagnostic for determining the valence of the cue is consistent with other studies, such as Solomon et al. (1996), in which participants relied strength of arguments for or against comprehensive exams, in part, to infer the perceived expertise of a source (high school senior vs. Harvard professor). In similar scenario, Reimer, Mata, & Stoecklin (2004) used a mediational analysis to find that participants inferred source expertise, in part, from the quality of the arguments used. These findings are inconsistent with the HSM co-occurrence principle, in that systematic and heuristic processing are held to be largely independent.

The results of this dissertation also shed light on the potential impact of the defense motivation. If mortality salience induces a nonconscious defense motivation, then the defense motivation appeared to result in an increase in both systematic and heuristic processing. The defense motivation also appeared to influence the interaction of systematic and heuristic processing, as suggested by the change in the slopes of argument quality and expertise cue. It seems that a defense motivation induced via mortality salience influenced the way persuasive messages were processed. Apparently, the defense motivation did so (1) by making worldview more accessible and (2) by increasing heuristic processing in general. The defense motivation also seemed to increase systematic processing, causing participants to process the arguments more closely.

Similar results might not hold if one engaged in a conscious shift to a defense motivation, such as might occur with forewarning. The HSM suggested that when people are motivated to process defensively they might attend to the message more and generate more counterarguments. However, the results presented here suggest that mortality salience might have led to an increase in heuristic processing. Most descriptions (e.g., Chen & Chaiken, 1999; Liberman & Chaiken, 1992) of the defense motivation seem to focus a conscious defense. When one's attitudes are threatened, one actively seeks to defend one's deeply held convictions about oneself and world. Arguments might be subject to greater scrutiny so that one can generate counterarguments. The conscious defense motivation would also lead to a selective application of heuristics for defensive purposes, but it would not necessarily lead to an overall increase in the heuristic mode of processing.

The heuristic-systematic model does not predict any particular directional effect for the defense motivation, only that people with a defense motivation will process persuasive messages in a manner different than people whose primary motivation is one of accuracy. Based on the results of this dissertation, one can predict in future research that a defense motivation will yield results that are similar to those produced under conditions of high involvement.

Bias

RQ5 sought to assess the interrelationship of mortality salience, argument quality, and expertise cue, and it was discovered that a 3-way interaction was a significant ($p < .05$) in predicting behavioral intentions. Worldview did not have a main effect on A_{brand}, so making worldview more accessible should not have affected the valence of the expertise cue

for A_{brand}. Argument quality did not have a main effect on A_{ad}, so argument quality should not have biased the valence of expertise cue for A_{ad}. Both worldview and argument quality had a significant main effect on behavioral intentions, however. When worldview was less accessible, the valence of the cue was biased by the strength of the arguments, but when worldview was more accessible, the cue's valence was moderated by worldview. When worldview was accessible, it became diagnostic for the expertise cue. When worldview was less accessible, the argument quality was diagnostic.

Although the systematic and heuristic paths are held to be largely independent of each other in exerting an influence over attitudes, Chaiken and Maheswaran (1994) reported that heuristic processing can bias systematic processing. The data in this dissertation suggest that the bias can flow in both directions, that is, that just as the interpretation of an ambiguous argument can be biased by heuristic cues, so also the interpretation of an ambiguous cue can be influenced by systematic processing.

The operant motivation in the control condition can be assumed to be one of accuracy, the traditional focus of most persuasion research. Changes wrought by the induction of a defense motivation in the mortality salience condition illustrate the way in which a change in motivation can influence how persuasive messages are processed.

Persuasion Knowledge Model

Participants' knowledge of persuasion may have influenced the their evaluations of the ads. The quality of the arguments biased the influence of the expertise cue such that the effect of the expertise cue was additive for strong arguments but attenuating for weak arguments. These results are congruent also with the persuasion knowledge model (Friestad

& Wright, 1994). In the context of weak arguments an expertise cue may have been viewed as a "persuasion technique," as participants' persuasion knowledge influenced the diagnosticity of argument quality for the expertise cue.

In this dissertation, topic and agent knowledge were nonexistent, as the product and brand name were fictitious. Of the three types of knowledge formulated in model—topic, agent, and persuasion—the only knowledge available to participants was persuasion knowledge, and this knowledge base was used to interpret the expertise cue in the control condition.

The "change-of-meaning" principle could have been operant via the diagnosticity of argument quality, wherein weak arguments caused the expertise cue to be perceived as a tactic. Thus, in this experiment, when strong arguments were present they were used to assign a positive valence to the expertise cue, but when the arguments were weak, they resulted in a negative valence being attributed to the expertise cue, which in that case could have been perceived as a persuasion tactic. When a nonconscious defense motivation was induced, however, and participants' worldview was more accessible, the worldview was diagnostic for determining the cue's valence.

Terror Management Theory

This dissertation also contributed to a greater understanding of terror management theory by demonstrating that mortality salience influences the way in which people process persuasive messages, even those messages that apparently have little consequence to them, such as ads for unknown mouthwash or razors. The linkage of the TMT mortality salience

with the HSM defense motivation suggests a possible theoretical connection and could encourage research that spans and informs both research programs.

Cultural worldviews are "humanly constructed beliefs about reality" shared by groups of people that function to reduce the potential of terror arising from one's awareness of death (Solomon, Greenberg, & Pyszczynski, 2004, p. 16). Cultural worldviews offer 1) beliefs about reality that provide a sense of meaning, order, and stability to one's existence, 2) social norms or approved ways of enhancing one's self-esteem, and 3) a form of literal or symbolic transcendence of death.

It is important to note that the definition of worldview in this dissertation primarily concerns the first of the three elements of the TMT definition, namely a way of perceiving and understanding reality, and not necessarily the latter two elements. Of course, the three elements can be (and often are) related. Norms and values are founded in a worldview, but they are distinct in that they are guides to behavior and not a lens through which one views the world. If one believes, for example, that "What goes around comes around," a cyclical holistic perspective in which things are inter-related, then that belief will inform one's standards of social behavior regarding generosity.

The Attitudes About Reality scale measured epistemological assumptions, and not ways to transcend death. Items that tapped social norms did so in terms of social relations, not self-esteem. Thus, the scale did not operationalize fully the construct of cultural worldview as established in TMT. The instrument operationalized the construct of worldview as described in this dissertation and defined by Koltko-Rivera (2004), namely a set of core constructs with which people make sense of the world.

One key distinction between the influence of worldview as defined in this dissertation and the role of cultural worldview in TMT is that in TMT the defense of one's worldview is purposive. TMT is built on a functional approach, in that people make recourse to their worldview for the purpose of reducing anxiety. People adopt a worldview for the purpose of allaying existential anxiety. The induction of mortality salience leads people to defend their worldview nonconsciously *for the purpose of* reducing their awareness of death. It is possible that some of the effects are not due to that central proposition. It may be that some of the effects are due to a greater nonconscious reliance on one's worldview as a form of habitual patterns of thought.

Terror Management Theory's functional explanation

This dissertation holds that everyone has a worldview, i.e. a way of making sense of the world, and this worldview is not intended primarily to reduce death-related anxiety. The purpose of a worldview extends beyond enabling one to cope with an awareness of death. A worldview exists to help one make sense of reality in general, not just the reality of one's own mortality (Koltko-Rivera, 2004). A worldview may or may not include a religion-related component, for instance.

Mortality salience leads to an increase in anxiety, which leads to a greater accessibility of habitual thought processes and core constructs. This increase is a byproduct of heightened anxiety, but no purpose is implied.

Although TMT has yielded a wealth of insights, some of the research suffers from a poor operationalization of a cultural worldview, as initially defined. It is important not to confound "beliefs about the nature of reality" with self-esteem, identity, lifestyle, or target-

specific attitudes. A cultural worldview has been equated with university affiliation (See & Petty, 2006; Solomon et al., 1995) and attitudes toward personal alcohol consumption (Shehryar & Hunt, 2005). These findings are theoretically valuable, but expanding the definition of "cultural worldview" to include social identity and target-specific attitudes jeopardizes the studies' construct validity. Greater insight could be derived by maintaining sharp distinctions between worldview and other related constructs and specifying the relations among them.

Ferraro et al. (2005) applied terror management theory in a consumer-choice context and made a valuable connection between TMT and ego-depletion without confounding the constructs. They found that high mortality salience led to fewer indulgent choices among people for whom such choices were an important base of self-esteem. Likewise, people for whom limiting indulgent choices was not a significant source of self-esteem increased their indulgent choices when mortality salience was high. Mortality salience also increased intentions of charitable or socially conscious behavior among people for whom that was important. In other words, increased mortality salience intensified participants' pre-existent tendencies toward a particular type of behavior. Although accessibility was not an explicit goal of the study, the results are consistent with the possibility that mortality salience resulted in an increased accessibility of learned patterns of behavior and thought.

This proposed explanation that mortality salience leads to a greater accessibility of habitual patterns of thought is not new. Greenberg et al. (1995) tested the alternative explanation that the mortality salience induction merely made one's values more accessible. In addition to the mortality salience manipulation, asking participants to reflect on the prospect of dying, and a control condition, in which participants were asked about watching

television, the researchers added a values condition in which participants were asked to write about their values. Then the participants were asked to read a hypothetical case about a prostitute from the perspective of a judge and set an appropriate level of bond. The authors found that priming people to think about values did not generate the same effects as the mortality salience induction. However, priming the conscious accessibility of one's values is not the same as the mortality salience manipulation. Indeed, proximal (conscious) responses to the mortality salience induction lessen the manipulation's effects. Distal responses in TMT are nonconscious.

A better way to test that explanation would be to employ a design such as the one employed in this dissertation. Following a mortality salience or control manipulation, with a filler task, one can assess values, using, for instance, values items from the General Social Survey, as well as worldview measures such as the one employed in this dissertation and determine what effect they have on the dependent variables.

Further support for the possible role of accessibility in explaining some TMT results can be found in Greenberg, Simon, Pyszczynski, Solomon, and Chatel (1992), who found that inducing mortality salience made conservatives become more negative toward outsiders, but liberals did not, presumably because tolerance is a chronically accessible core construct for liberals. Notably, that effect disappeared after the construct of tolerance was made more accessible. In other words, conservatives did not become more negative when primed with tolerance. If the one seeks to defend one's cultural worldview as means of reducing death-related anxiety, as TMT posits, and tolerance is not a key element of that worldview, then priming a construct that is not a core part of one's cultural worldview should not reduce anxiety. One should still seek to reduce anxiety somehow. From an accessibility perspective,

however, the results could be interpreted as competing equally accessible constructs, namely, a conservative worldview made accessible via mortality salience and tolerance, made accessible via priming.

TMT was tested (Simon et al., 1997) in relation to the cognitive-experiential self-theory, which holds that the bulk of people's cognitive activity does not involve effortful rational analysis but instead makes use of automatic effortless processing (Epstein & Pacini, 1999). Participants who processed in an experiential mode exhibited the traditional effects of mortality salience, whereas participants who processed in rational mode did not, leading the authors to conclude that such effects are most likely when people rely on the experiential cognitive system. It has been suggested (Epstein, Pacini, Denes-Raj, & Heier, 1996; Arndt et al., 2004) that the rational-experiential framework bears some resemblance, in broad strokes, to other dual-process models such as the HSM. To the extent that the experiential system is analogous to the heuristic mode of processing, then these results suggest that mortality salience induction should lead to an increase in heuristic processing but not an increase in systematic processing.

Much of the research in TMT involves measuring attitudes or behavior in areas that are closely related to one's cultural worldview, such as nationalism or stereotyping. This dissertation, found however, that mortality salience affects attitudes toward advertising of razors and mouthwash, messages and objects that presumably have little to do with one's worldview. A traditional TMT interpretation would hold that participants who tended toward a relativist worldview evaluated the arguments and cues more negatively than they would otherwise as a means of allaying existential anxiety. However, it is perhaps more likely that death-related anxiety caused sets of core assumptions to become more accessible in general,

not for the primary purpose of reducing existential anxiety. It is possible, also, that the heuristics themselves did not become more accessible, only that heuristic processing was intensified, leading to a greater use of heuristics in forming an attitude. This dissertation did not address technical distinctions such as the relationship between the heuristic processing mode and the heuristics themselves.

In all likelihood, it is possible that the explanations are complementary. Mortality salience causes responses intended to ease anxiety over death and also generates a more widespread tendency toward habitual patterns of thought and behavior.

Most TMT studies, but certainly not all, induce mortality salience and subsequently present participants with a threat to their cultural worldview or self-esteem. In this dissertation, however, participants viewed ads for mouthwash and razors, personal consumption products that could hardly be construed as threats.

Mediation in persuasion

The pattern of results of this dissertation offer insight into a possible mediating mechanism for involvement in persuasion. In some ways, the results of the mortality salience manipulation paralleled those of dual-process studies manipulating involvement. That is, like studies in which more systematic and elaborative thought occurred under conditions of high involvement, making mortality salient resulted in greater attention to the strength of the arguments. In the mortality salience condition, strong arguments were deemed stronger and weak arguments were considered weaker than in the control condition. Thus, mortality salience, in addition to increasing heuristic processing by making worldview more accessible, may have led also to an increase in systematic processing.

This similarity suggests that manipulations of involvement and mortality salience might share a common mediating variable of their effects. The influence of mortality salience on persuasion processes suggests that anxiety or arousal might be a central mediating mechanism in dual-path accounts of persuasion.

Involvement is only one factor theorized to affect dual-path processing. Anxiety is another factor that produced similar results on each path. Anxiety in this dissertation, like involvement in other studies, appeared to influence the paths to persuasion. This suggests that anxiety may parallel involvement, producing similar effects.

This account is highly speculative, however. Repeated studies have shown that affect and anxiety related to potential stressors such as fear or dental pain do not produce the same effects as mortality salience. Only existential anxiety produces mortality salience effects (Arndt et al., 2004).

Perhaps arousal is a central mediating mechanism in dual-path models of persuasion. Arousal was not measured in this dissertation, but the lack of a measure of the presumed mediator does not necessarily rule out its plausibility (Sigall & Mills, 1998). Caffeine, a stimulant that generates higher levels of arousal, has also been found to produce an increase in systematic processing (Martin, Laing, Martin, & Mitchell, 2005). Perhaps higher levels of involvement also generate a concomitant level of arousal, which mediates the effect of involvement on information processing. The results of this dissertation regarding the diagnosticity of argument quality and worldview are consistent also with an explanation offered by Pham (1996), that arousal produces a selection effect in which some cues are perceived to be more diagnostic than other cues (which presumably are equally accessible). However, a test of the possible role of affect in explaining mortality salience effects found

that subliminal primes of mortality salience did not result changes in facial electromyography (Arndt, Allen, & Greenberg, 2001). Most TMT research has not included specific measures of theorized mediators, but failure to measure a mediator is not necessarily a shortcoming of the research (Sigall & Mills, 1998). However, further studies that focus on mediational processes should include both manipulation checks (e.g., word completion tasks, Arndt et al., 2004) and mediation checks (e.g., skin conductance).

The relationship between involvement and mortality salience could be examined in a study that manipulates both variables. It appears that mortality salience results in an increase in both heuristic and systematic processing, while involvement leads only to greater systematic processing. A follow-up study to the possible influence of mortality salience on systematic processing certainly is worthy of scholarly attention, given that most TMT studies generally show effects only on nonconscious and heuristic processing.

Solomon et al. (1996) examined mortality salience in a persuasion context but the study did not manipulate involvement. All the participants were in a high involvement condition, namely, the possibility of comprehensive exams at their college in the near future. In the control condition, argument quality had a main effect regardless of whether the argument was made by an ivy league professor (high expertise) or a high school senior (low expertise). When mortality was made salient, however, argument quality was persuasive only when the source was an expert. Because of high involvement, participants should have engaged in systematic processing regardless of the expertise of the source. However, the mortality salience induction reduced systematic processing when the source was not an expert. These findings would need to be replicated, however, as the authors of that study, unlike the vast majority of studies that manipulate involvement, did not find a general

increase in systematic processing in the control condition despite the personally relevant topic.

Worldview as an antecedent variable

Theorized relationships between worldview and mortality salience, worldview and dual modes of information processing, and between worldview and persuasion knowledge underscore the need for a clear explication of constructs and their relationships. It is unclear if worldview is an antecedent variable that moderates both systematic and heuristic processing, or if worldview more properly forms a set of heuristics that is used in heuristic processing and which can also influence systematic processing. Defining this issue would involve revisiting studies that discussed the influence of antecedent variables such as embedded beliefs (Pomerantz et al., 1995) or ideology (Giner-Sorolla et al., 2002). A key notion of the heuristic-systematic model is that heuristics can be "cued." Some variables, such as personality, are more properly antecedent to dual-path processing because they cannot be cued by a characteristic of a persuasive message. Are the antecedent variables in those studies previously formed attitudes or strongly held beliefs? New and unexplained results such as those require theoretical specification and a clear delineation of constructs. In some formulations of the heuristic-systematic model (Chen & Chaiken, 1999), "theory" was held to be a source of heuristics, but in other studies (Pomerantz et al.; Giner-Sorolla et al.), embedded core beliefs were considered antecedents.

Unfortunately, the tests of 2-way interactions of worldview with either argument quality or expertise cue were nonsignificant. If worldview is properly an antecedent variable, then it should exert influence over both the systematic and the heuristic modes of processing.

If worldview is primarily a source of heuristics, then worldview should affect the influence of an expertise cue but not of argument quality. It is possible also that, even if worldview were mainly a source of heuristics, one's worldview could bias systematic processing indirectly, by influencing the interpretation of heuristic cues which would then bias systematic processing. This dissertation's results concerning the relationship between worldview and either argument quality and expertise cue are inconclusive. It appeared that a relativist worldview may have influenced evaluations of both argument quality and expertise cue. Therefore one should predict that worldview is more properly situated as an antecedent of dual-path processing.

Feldman's (1999) process framework is necessarily and intentionally open with regard to the types of knowledge, such as "values, motives, dispositions" (p. 60), to which the framework applies. But the framework might serve as a taxonomy with which to compare types of knowledge in terms of their accessibility and diagnosticity, the effect of motivation upon them, and their relationship to capacity. For instance, both worldview and persuasion knowledge could be classified as antecedent variables. A worldview is chronically accessible and diagnostic across many situations, whereas persuasion knowledge becomes accessible during persuasion episodes and is relevant only in such persuasion attempts. Worldview exerts an influence when one is motivated by accuracy or defense, but persuasion knowledge is likely to play a larger role when a person has a defense motivation than when that person's primary motivation is accuracy. These differences could be tested in experiments manipulating the type of episode (persuasion or nonpersuasion) and motivation (accuracy or defense) to determine if the accessibility and diagnosticity of worldview or persuasion knowledge vary.

Matching

This dissertation can aid research in customization and matching, which amounts to tailoring messages to an individual (Kalyanaraman & Sundar, 2006). People report more favorable attitudes and more involved behavior when information matches their interests (Kalyanaraman & Sundar, 2006). In addition, persuasive messages that are congruent with one's perception of oneself tend to be more effective (Wheeler et al., 2005). If messages tailored to one's self-image are more effective, then it is reasonable to think that messages that match one's worldview would be more effective, as well. To a certain extent, the ultimate customization would involve messages matched to the pictures in a person's head.

Practical implications

Although the theoretical contributions are several, this dissertation is not without practical implications, as well. Worldview appeared to be a significant factor both in how ads were evaluated and the likelihood that one might try a product. Most of the research in psychographics has concentrated on values and lifestyles, but the role of worldviews seems to hold promise in further understanding consumers. Future market research might develop efficient means to assess worldviews and probe associations with media use, consumption patterns, and demographic variables. This would enable communicators to identify and reach groups of people with tailored messages.

Several popular prime-time television programs, particularly those in the criminal investigation genre, deal with death, which presumably make viewers' mortality salient. In addition, death-related themes are common in television news programs. Based on the results

of this dissertation, communicators should realize that viewers' worldviews might have more influence on their heuristic processing than when they are viewing other genres such as comedy, home improvement, or game shows. In addition, viewers might engage in more systematic processing of the messages with which they are presented. Persuasive commercial messages that rely on systematic processing might be more effective if they are presented when viewers' mortality is more salient.

Limitations

Threats to internal validity

Limitations other than the ones mentioned above are several. The sample size poses a threat to this dissertation's internal validity, namely statistical validity, and is arguably the greatest validity threat. The sample size ($N = 149$) was sufficient for detecting main effects for four independent variables (Cohen, 1992), but far too small for detecting 3-way interactions, and likely, 2-way interactions. The discussion of the effect of mortality salience on 2-way interactions has been necessarily tentative. This threat can be reduced by continuing to recruit participants.

In addition, the measures of worldview were administered before participants were asked to evaluate the ads, which may have led to differential carryover (Feldman & Lynch, 1988). Asking participants to report on assumptions that are usually tacit may have made them more accessible during the subsequent experimental tasks. A future study would need to vary the order of administration of the worldview measures in addition to the counterbalancing the order of the ads.

Threats to external validity

The particular sample used may have been characterized by moderate involvement. The products chosen for the stimulus materials were designed to elicit low levels of involvement and replicate earlier studies that employed the same products. However, students in the School of Journalism and Mass Communication appeared to be moderately involved in the study, not because the particular products elicited high levels of involvement, but because the domain of advertising was relevant to them. One can imagine that if one were to ask civil engineering students to evaluate bridge designs, a domain of interest to engineering students, they would be more involved in that task than mass communication students would. However, the participants in this experiment were not told that they were part of a small group whose responses would matter greatly, nor did they expect to evaluate the advertised product at a later time, nor were the led to believe that the product would be introduced in the local area or that they would receive one of the products, techniques that have been used to elicit high levels of involvement. The participants were told that their responses would be used to refine experimental materials, and, in an effort to minimize the possibility of missing data, they were encouraged to answer each questionnaire completely. During the experimental sessions, the participants were instructed to view the advertisements as they normally would, but the participants were observed referring to the advertisement as they filled out the questionnaire related to it. Overall, then, the participants appeared to be moderately involved in the study, and one cannot say that the experiment took place under conditions of either low or high involvement.

This presumed moderate level of participants' involvement is a threat to the study's external validity. That is, students preparing for a career in mass communication may not

process advertisements as would the general public. It might be, for example, that the observed distinction between worldview and argument quality in predicting A_{ad} and A_{brand} pertained only to mass communication students. Thus, the sample used might threaten generalizability. This threat could be reduced by expanding the sample beyond students of mass communication.

A mono-operation bias from the use of a single worldview instrument, the Attitudes About Reality (AAR) scale, might pose a threat to construct validity. The Constructivist Assumptions Scale was not employed because of the measure's low reliability in this experiment. However, the AAR has been used in published studies with a variety of samples, and there is general agreement that it measures what is termed in this experiment a relativist worldview. Even though the scale's reliability was less than desired, the instrument appeared to be a useful measure of a relativist worldview.

This dissertation manipulated argument quality, that is, strong and weak arguments. However, communicators would hardly purposefully employ weak arguments (Areni & Lutz, 1988), and the usage of specious arguments, while useful for exploring a proposed theoretical relation, jeopardized the experiment's ecological validity. Further research could explore if worldview might moderate dialectic vs. analytic arguments and statistical vs. narrative or episodic arguments.

Other limitations

This dissertation operationalized only one worldview, one heuristic cue, and argument quality. It is to be expected that other worldviews, other cues, and other types of arguments might yield different results. Further, the theoretical relationships were explored

only in the context of print ads for consumer products, and one might discover relationships in other product categories, such as durable goods or services, or in other domains, such as political or health communication, or in other modalities, such as television or online media.

Suggestions for future research

The limitations discussed offer avenues for further research. Only one worldview was operationalized in this dissertation, and depending on the availability of reliable and valid measures, one could conduct the experiment with other worldviews.

The advertisements employed were limited to personal hygiene products. It remains to be seen if the results would vary if one used ads for politicians and political issues (in which trait involvement might be higher and worldviews might be more diagnostic), ads for durable goods (in which the cost, and presumably state involvement, is higher), or health campaigns (either behavior promotion or prevention). Future research could move beyond ads to other persuasive messages to consider the impact of worldviews on the perceptions of editorials and news articles, as well.

To reduce the threat to external validity posed by the sample, the study could be conducted with students preparing for other career choices or with members of the general public to see if the same results hold.

The mortality salience manipulation appeared to produce results that mirrored those of persuasion under conditions of high involvement. A subsequent study could explore this possibility by manipulating both involvement and mortality salience to explore their effects on the same dependent variables. Further, given that anxiety was proposed as a central mediating mechanism in dual-path models of persuasion, physiological measures could be

used to assess the manipulations of mortality salience and involvement, which could be contrasted with other forms of arousal such as that arising from physical exercise (Sanbonmatsu & Kardes, 1988).

Research could benefit from further explication of theoretical constructs and their relationships. Such an explication should interpret existing research and provide a heuristic value for research in the future. To that extent, the results from this dissertation point to promising areas of research for future exploration and testing, and further investigation can help researchers understand why a single persuasive media message might generate different results. In conclusion, to revisit the anecdotal example at the beginning of this dissertation:

An ad for Martha Stewart's artificial sweetener that relied on traditional arguments and her expertise might appeal to Robert but have no effect on Sandra or Sara. The ad's claims of unbiased laboratory testing and expert experience would be effective to the extent that they were congruent with Robert's assumptions about the possibility of certainty and objectivity. To the extent that they were incongruent with Sandra's and Sara's assumptions, the ad would be ineffective, and to the extent that Sara's worldview is more accessible to her as she processed the message, the ad would be even less effective. Further research into worldviews and media effects could reveal why Robert might be persuaded to try Martha Stewart's artificial sweetener and why Sandra and Sara might not.

And why Sara might order an extra latte.

Appendix A

Tables

Table 1. Hypotheses and research questions.

No.	Supported	Variables	Hypothesis or Research Question	Rationale
RQ1	Main effect evident for A_{ad} and BI	W	What effect, if any, will a relativist worldview have on the global evaluations of the ads?	Assesses chronic accessibility of worldview
H1	Not significant	W x C	A relativist worldview will exhibit an inverse relationship to evaluations of ads containing an expertise cue.	Integrate worldview into HSM
H2	Not significant	W x A	A relativist worldview will exhibit an inverse relationship to evaluations of ads containing a strong propositional argument.	Integrate worldview into HSM
H3	Not significant	A x C	An authority cue and a strong argument will interact such that evaluations of ads will be stronger than those of ads containing the authority cue alone or a strong argument alone.	Tests HSM additivity, attenuation, and bias hypotheses
RQ2	Not significant	W x A x C	Will worldview moderate the interaction of argument strength and expertise cue?	Integrate worldview into HSM
RQ3	No main effect	M	What effect, if any, will mortality salience have on the evaluation of ads?	HSM defense motivation and TMT
RQ4	Not significant	M x A and M x C	Will mortality salience interact with an expertise cue or with argument strength to affect the evaluation of ads?	HSM defense motivation
RQ5	The 3-way interaction was significant only for BI	M x A x C	Will mortality salience moderate the joint effect of both an expertise cue and a strong argument?	HSM defense motivation and additivity hypothesis
H4	Supported for A_{ad} and BI	M x W	Mortality salience and worldview will interact such that mortality salience will make worldview more accessible.	Integrate worldview theory with HSM defense motivation and TMT
H5	Not significant	M x W x C	Mortality salience, worldview, and an expertise cue will interact such that participants' evaluations of ads will be lower (higher) than the two-way interaction tested in H4.	Worldview theory and defense motivation
H6	Not significant	M x W x A	Mortality salience, worldview, and argument strength will interact such that participants' evaluations of ads will be lower (higher) than the two-way interaction tested in H5.	Worldview theory and defense motivation

Table 2. Descriptive statistics.

		A_{ad}	A_{brand}	Beh. Int.	Need for Closure	Constr. Assump.	Att. About Reality
N	Valid	149	149	149	149	149	148
	Missing	0	0	0	0	0	1
Mean		4.5134	4.4937	4.5738	5.3540	6.0872	4.5801
Std. Error of Mean		.09525	.11016	.15061	.06583	.06773	.04752
Median		4.4444	4.5385	4.5000	5.4048	6.0833	4.6375
Mode		4.28	4.46	4.50	5.55(a)	6.25	4.72
Std. Deviation		1.16265	1.34471	1.83838	.80352	.82671	.57817
Variance		1.352	1.808	3.380	.646	.683	.334
Skewness		.003	-.307	-.200	-.416	-.404	-.267
Std. Error of Skewness		.199	.199	.199	.199	.199	.199
Kurtosis		-.016	-.076	-.652	1.261	1.093	.522
Std. Error of Kurtosis		.395	.395	.395	.395	.395	.396
Range		5.89	6.38	7.50	4.95	4.92	3.45
Minimum		1.44	1.00	1.00	2.48	3.42	2.63
Maximum		7.33	7.38	8.50	7.43	8.33	6.08

a Multiple modes exist. The smallest value is shown

Table 3. Tests of unidimensionality and reliability.

Measure	X2	df	Cronbach's α	No. of Items
Need For Closure	1793.924[a]	819	.88	42
Constructivist Assumptions Scale	142.150[a]	54	.59	12
Attitudes About Reality	1328.309[a]	740	.78	40
A_{ad}	625.013[a]	135	.90	18
A_{brand}	315.100[a]	65	.94	13
Behavioral Intentions	--	--	.50[a]	2

[a] = $p < .01$.

Table 4. Correlation and covariance.

		1	2	3	4	5	6	7
1. Mortality Salience	Pearson Correlation	1	-.007	-.020	.010	-.021	-.021	.036
	Sig. (2-tailed)	.	.936	.809	.902	.802	.801	.660
	N	149	149	149	148	149	149	149
2. Argument quality	Pearson Correlation	-.007	1	-.007	-.008	.109	.207(*)	.231(**)
	Sig. (2-tailed)	.936	.	.934	.921	.184	.011	.005
	N	149	149	149	148	149	149	149
3. Expertise Cue	Pearson Correlation	-.020	-.007	1	-.138	-.053	-.071	-.050
	Sig. (2-tailed)	.809	.934	.	.095	.524	.387	.541
	N	149	149	149	148	149	149	149
4. Attitudes About Reality Scale	Pearson Correlation	.010	-.008	-.138	1	-.194(*)	-.050	-.237(**)
	Sig. (2-tailed)	.902	.921	.095	.	.018	.545	.004
	N	148	148	148	148	148	148	148
5. Aad	Pearson Correlation	-.021	.109	-.053	-.194(*)	1	.619(**)	.568(**)
	Sig. (2-tailed)	.802	.184	.524	.018	.	.000	.000
	N	149	149	149	148	149	149	149
6. Abrand	Pearson Correlation	-.021	.207(*)	-.071	-.050	.619(**)	1	.550(**)
	Sig. (2-tailed)	.801	.011	.387	.545	.000	.	.000
	N	149	149	149	148	149	149	149
7. Behavioral Intentions	Pearson Correlation	.036	.231(**)	-.050	-.237(**)	.568(**)	.550(**)	1
	Sig. (2-tailed)	.660	.005	.541	.004	.000	.000	.
	N	149	149	149	148	149	149	149

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

Table 5. Slopes of dummy codes and effect codes for A_{ad}.

Dependent Variable: A_{ad}; $F(15, 132) = 1.355$, ($p = .179$)

Independent Variable	Dummy Codes	Effect Codes
Worldview	.136	-.458
	(.794)	(.012)
Mortality salience	-.423	-.002
	(.266)	(.987)
Argument	-.042	.109
	(.913)	(.260)
Expertise cue	-.432	-.083
	(.280)	(.395)
A x C	.295	-.020
	(.592)	(.840)
M x C	.613	.060
	(.264)	(.537)
M x A	.601	.057
	(.262)	(.558)
M x W	-.564	-.380
	(.463)	(.036)
C x W	-.075	-.154
	(.909)	(.393)
A x W	.012	-.143
	(.986)	(.426)
M x W x C	-.528	.067
	(.580)	(.710)
M x W x A	-.660	.034
	(.510)	(.851)
W x A x C	-.731	.016
	(.423)	(.928)
M x A x C	-.747	-.093
	(.337)	(.337)
M x W x A x C	1.591	.199
	(.269)	(.269)

(p values are in parentheses)

Table 6. Slopes of dummy codes and effect codes for A_{brand}.

Dependent Variable: A_{brand}; $F(15, 132) = .678$, ($p = .803$)

Independent Variable	Dummy Codes	Effect Codes
Worldview	-.065	-.150
	(.918)	(.487)
Mortality salience	-.121	-.023
	(.791)	(.847)
Argument	.121	.277
	(.794)	(.019)
Expertise cue	-.355	-.100
	(.460)	(.391)
A x C	.640	.096
	(.334)	(.412)
M x C	-.073	-.082
	(.912)	(.479)
M x A	.482	.056
	(.453)	(.630)
M x W	-.532	-.076
	(.564)	(.725)
C x W	.011	.002
	(.989)	(.992)
A x W	.228	.067
	(.780)	(.756)
M x W x C	.433	.126
	(.705)	(.559)
M x W x A	.257	.082
	(.831)	(.704)
W x A x C	-.516	-.111
	(.637)	(.605)
M x A x C	-.514	-.064
	(.581)	(.581)
M x W x A x C	.141	.018
	(.935)	(.935)

(p values are in parentheses)

Table 7. Slopes of dummy codes and effect codes for behavioral intentions.

Dependent Variable: BI; $F(15, 132) = 2.451$, ($p = .003$)

Independent Variable	Dummy Codes	Effect Codes
Worldview	.775	-.985
	(.325)	(.001)
Mortality salience	-.179	.091
	(.754)	(.534)
Argument	.461	.404
	(.429)	(.006)
Expertise cue	-.614	-.154
	(.308)	(.292)
A x C	1.043	-.115
	(.210)	(.431)
M x C	1.072	-.108
	(.195)	(.460)
M x A	1.153	-.087
	(.153)	(.550)
M x W	-.2.575	-.660
	(.027)	(.016)
C x W	-.1.535	-.360
	(.123)	(.184)
A x W	-.756	-.284
	(.461)	(.294)
M x W x C	2.314	.362
	(.109)	(.182)
M x W x A	1.061	.049
	(.482)	(.856)
W x A x C	.181	-.171
	(.895)	(.527)
M x A x C	-3.006	-.376
	(.011)	(.011)
M x W x A x C	-.1.731	-.216
	(.424)	(.424)

(p values are in parentheses)

Table 8. Slopes with reverse-coded variables for A_{ad}.

Independent Variable	Dummy Codes	Mortality Salience Reversed	Argument Quality Reversed	Expertise Cue Reversed
Worldview	.136	-.428	.148	.061
	(.794)	(.447)	(.735)	(.879)
Mortality salience	-.423	.423	.178	.190
	(.266)	(.266)	(.637)	(.631)
Argument	-.042	. 559	.042	.253
	(.913)	(.132)	(.913)	(.520)
Expertise cue	-.432	.180	-.137	.432
	(.280)	(.630)	(.717)	(.280)
A x C	.295	-.452	-.295	-.295
	(.592)	(.409)	(.592)	(.592)
M x C	.613	-.613	-.134	-.613
	(.264)	(.264)	(.807)	(.264)
M x A	.601	-.601	-.601	-.146
	(.262)	(.262)	(.262)	(.795)
M x W	-.564	.564	-1.224	-1.092
	(.463)	(.463)	(.059)	(.056)
C x W	-.075	-.604	-.807	.075
	(.909)	(.383)	(.202)	(.909)
A x W	.012	-.649	-.012	-.719
	(.986)	(.379)	(.986)	(.236)
M x W x C	-.528	.528	1.063	.528
	(.580)	(.580)	(.323)	(.580)
M x W x A	-.660	.660	.660	.931
	(.510)	(.510)	(.510)	(.366)
W x A x C	-.731	.860	.731	.731
	(.423)	(.439)	(.423)	(.423)
M x A x C	-.747	.747	.747	.747
	(.337)	(.337)	(.337)	(.337)
M x W x A x C	1.591	-1.591	-1.591	-1.591
	(.269)	(.269)	(.269)	(.269)

(*p* values are in parentheses)

Table 9. Slopes with reverse-coded variables for A_{brand}.

Independent Variable	Dummy Codes	Mortality Salience Reversed	Argument Quality Reversed	Expertise Cue Reversed
Worldview	-.065	-.597	.164	-.054
	(.918)	(.377)	(.755)	(.911)
Mortality salience	-.121	.121	.361	-.194
	(.791)	(.791)	(.425)	(.683)
Argument	.121	.603	-.121	.761
	(.794)	(.175)	(.794)	(.108)
Expertise cue	-.355	-.427	.285	.355
	(.460)	(.343)	(.531)	(.460)
A x C	.640	.125	-.640	-.640
	(.334)	(.848)	(.334)	(.334)
M x C	-.073	.073	-.587	.073
	(.912)	(.912)	(.374)	(.912)
M x A	.482	-.482	-.482	-.033
	(.453)	(.453)	(.453)	(.961)
M x W	-.532	.532	-.275	-.099
	(.564)	(.564)	(.722)	(.885)
C x W	.011	.444	-.505	-.011
	(.989)	(.593)	(.504)	(.989)
A x W	.228	.485	-.228	-.288
	(.780)	(.583)	(.780)	(.692)
M x W x C	.433	-.433	.574	-.433
	(.705)	(.705)	(.656)	(.705)
M x W x A	.257	-.257	-.257	.397
	(.831)	(.831)	(.831)	(.748)
W x A x C	-.516	-.376	.516	.516
	(.637)	(.778)	(.637)	(.637)
M x A x C	-.514	.514	.514	.514
	(.581)	(.581)	(.581)	(.581)
M x W x A x C	.141	-.141	-.141	-.141
	(.935)	(.935)	(.935)	(.935)

(*p* values are in parentheses)

Table 10. Slopes with reverse-coded variables for behavioral intentions.

Independent Variable	Dummy Codes	Mortality Salience Reversed	Argument Quality Reversed	Expertise Cue Reversed
Worldview	.775	-1.800	.019	-.759
	(.325)	(.035)	(.977)	(.209)
Mortality salience	-.179	.179	.974	.892
	(.754)	(.754)	(.087)	(.135)
Argument	.461	1.614	-.461	1.504
	(.429)	(.004)	(.429)	(.012)
Expertise cue	-.614	.458	.429	.614
	(.308)	(.418)	(.453)	(.308)
A x C	1.043	-1.963	-1.043	-1.043
	(.210)	(.018)	(.210)	(.210)
M x C	1.072	-1.072	-1.935	-1.072
	(.195)	(.195)	(.021)	(.195)
M x A	1.153	-1.153	-1.153	-1.853
	(.153)	(.153)	(.153)	(.030)
M x W	-2.575	2.575	-1.514	-.261
	(.027)	(.027)	(.121)	(.760)
C x W	-1.535	.779	-1.354	1.535
	(.123)	(.454)	(.155)	(.123)
A x W	-.756	.305	.756	-.575
	(.461)	(.783)	(.461)	(.528)
M x W x C	2.314	-2.314	.583	-2.314
	(.109)	(.109)	(.718)	(.109)
M x W x A	1.061	-1.061	-1.061	-.670
	(.482)	(.482)	(.482)	(.665)
W x A x C	.181	-1.550	-.181	-.181
	(.895)	(.354)	(.895)	(.895)
M x A x C	-3.006	3.006	3.006	3.006
	(.011)	(.011)	(.011)	(.011)
M x W x A x C	-1.731	1.731	1.731	1.731
	(.424)	(.424)	(.424)	(.424)

(*p* values are in parentheses)

Table 11. Slopes with multiple reverse-coded variables for A_{ad}.

Independent Variable	Mortality Salience and Argument Quality Reversed	Mortality Salience and Expertise Cue Reversed	Argument Quality and Expertise Cue Reversed	Mortality Salience, Argument Quality, and Expertise Cue Reversed
Worldview	-1.076	-1.031	-.658	-.820
	(.025)	(.011)	(.148)	(.261)
Mortality salience	-.178	-.190	.044	-.044
	(.637)	(.631)	(.914)	(.914)
Argument	-.559	.107	-.253	-.107
	(.132)	(.791)	(.520)	(.791)
Expertise cue	-.271	-.180	.137	.271
	(.496)	(.630)	(.717)	(.496)
A x C	.452	.452	.295	-.452
	(.409)	(.409)	(.592)	(.409)
M x C	.134	.613	.134	-.134
	(.807)	(.264)	(.807)	(.807)
M x A	.601	.146	.146	-.146
	(.262)	(.795)	(.795)	(.795)
M x W	1.224	1.092	-.161	.161
	(.059)	(.056)	(.851)	(.851)
C x W	.257	.604	.807	-.257
	(.768)	(.383)	(.202)	(.768)
A x W	.649	.212	.719	-.212
	(.379)	(.799)	(.236)	(.799)
M x W x C	-1.063	-.528	-1.063	1.063
	(.323)	(.580)	(.323)	(.323)
M x W x A	-.660	-.931	-.931	.931
	(.510)	(.366)	(.366)	(.366)
W x A x C	-.860	-.860	-.731	.860
	(.439)	(.439)	(.423)	(.439)
M x A x C	-.747	-.747	-.747	.747
	(.337)	(.337)	(.337)	(.337)
M x W x A x C	1.591	1.591	1.591	-1.591
	(.269)	(.269)	(.269)	(.269)

(*p* values are in parentheses)

Table 12. Slopes with multiple reverse-coded variables for A_{brand}.

Independent Variable	Mortality Salience and Argument Quality Reversed	Mortality Salience and Expertise Cue Reversed	Argument Quality and Expertise Cue Reversed	Mortality Salience, Argument Quality, and Expertise Cue Reversed
Worldview	-.112	-.152	-.342	-.043
	(.845)	(.752)	(.530)	(.961)
Mortality salience	-.361	.194	-.226	.226
	(.425)	(.683)	(.638)	(.638)
Argument	-.603	.729	-.761	-.729
	(.175)	(.134)	(.108)	(.134)
Expertise cue	-.302	.427	-.285	.302
	(.527)	(.343)	(.531)	(.527)
A x C	-.125	-.125	.640	.125
	(.848)	(.848)	(.334)	(.848)
M x C	.587	-.073	.587	-.587
	(.374)	(.912)	(.374)	(.374)
M x A	.482	.033	.033	-.033
	(.453)	(.961)	(.961)	(.961)
M x W	.275	.099	.299	-.299
	(.722)	(.885)	(.722)	(.772)
C x W	.069	-.444	.505	-.069
	(.948)	(.593)	(.504)	(.948)
A x W	-.485	.110	.228	-.110
	(.583)	(.913)	(.692)	(.913)
M x W x C	-.574	.433	-.574	.574
	(.656)	(.705)	(.656)	(.656)
M x W x A	.257	-.397	-.397	.397
	(.831)	(.748)	(.748)	(.748)
W x A x C	.376	.376	-.516	-.376
	(.778)	(.778)	(.637)	(.778)
M x A x C	-.514	-.514	-.514	.514
	(.581)	(.581)	(.581)	(.581)
M x W x A x C	.141	.141	.141	-.141
	(.935)	(.935)	(.935)	(.935)

(*p* values are in parentheses)

Table 13. Slopes with multiple reverse-coded variables for behavioral intentions.

Independent Variable	Mortality Salience and Argument Quality Reversed	Mortality Salience and Expertise Cue Reversed	Argument Quality and Expertise Cue Reversed	Mortality Salience, Argument Quality, and Expertise Cue Reversed
Worldview	-1.495	-1.021	-1.335	-2.266
	(.038)	(.093)	(.052)	(.040)
Mortality salience	-.974	-.892	-.961	.961
	(.087)	(.135)	(.113)	(.113)
Argument	-1.614	-.349	-1.504	.349
	(.004)	(.565)	(.012)	(.565)
Expertise cue	-1.506	-.458	-.429	1.506
	(.013)	(.418)	(.453)	(.013)
A x C	1.963	1.963	1.043	-1.963
	(.018)	(.018)	(.210)	(.018)
M x C	1.935	1.072	1.935	-1.935
	(.021)	(.195)	(.021)	(.021)
M x A	1.153	1.853	1.853	-1.853
	(.153)	(.030)	(.030)	(.030)
M x W	1.514	.261	-.931	.931
	(.121)	(.760)	(.471)	(.556)
C x W	-.771	-.779	1.354	.771
	(.556)	(.454)	(.155)	(.123)
A x W	-.305	-1.245	.575	1.245
	(.783)	(.321)	(.528)	(.321)
M x W x C	-.583	2.314	-.583	.583
	(.718)	(.109)	(.718)	(.718)
M x W x A	1.061	.670	.670	-.670
	(.482)	(.665)	(.665)	(.665)
W x A x C	1.550	1.550	.181	-1.550
	(.354)	(.354)	(.895)	(.354)
M x A x C	-3.006	-3.006	-3.006	3.006
	(.011)	(.011)	(.011)	(.011)
M x W x A x C	-.1.731	-1.731	-1.731	1.731
	(.424)	(.424)	(.424)	(.424)

(*p* values are in parentheses)

Table 14. Regression of dependent variable A_{ad}; $F(15, 132) = 1.355$, ($p = .179$).

	B	S. E.	β	*t*	*p*	Partial η^2
(Constant)	4.508	.097		46.537	.000	.943
Worldview	-.458	.179	-.228	-2.558	.012	.047
Mortality salience	-.002	.097	-.001	-.016	.987	.000
Argument quality	.109	.097	.094	1.131	.260	.009
Expertise cue	-.083	.097	-.071	-.853	.395	.006
A x C	-.020	.097	-.017	-.203	.840	.000
M x C	.060	.097	.052	.618	.537	.003
M x A	.057	.097	.049	.587	.558	.003
M x W	-.380	.179	-.189	-2.122	.036	.033
W x C	-.154	.179	-.076	-.858	.393	.006
W x A	-.143	.179	-.071	-.798	.426	.005
M x W x C	.067	.179	.033	.373	.710	.001
M x W x A	.034	.179	.017	.189	.851	.000
W x A x C	.016	.179	.008	.090	.928	.000
M x A x C	-.093	.097	-.080	-.964	.337	.007
W x M x A x C	.199	.179	.098	1.110	.269	.009

Table 15. Regression of dependent variable A_{brand}; $F(15, 132) = .678$, ($p = .803$).

	B	S. E.	β	*t*	*p*	Partial η^2
(Constant)	4.490	.116		38.620	.000	.919
Worldview	-.150	.215	-.064	-.698	.487	.004
Mortality salience	-.023	.116	-.017	-.194	.847	.000
Argument quality	.277	.116	.206	2.382	.019	.041
Expertise cue	-.100	.116	-.074	-.860	.391	.006
A x C	.096	.116	.071	.823	.412	.005
M x C	-.082	.116	-.061	-.710	.479	.004
M x A	.056	.116	.042	.483	.630	.002
M x W	-.076	.215	-.033	-.353	.725	.001
W x C	.002	.215	.001	.010	.992	.000
W x A	.067	.215	.029	.311	.756	.001
M x W x C	.126	.215	.054	.586	.559	.003
M x W x A	.082	.215	.035	.380	.704	.001
W x A x C	-.111	.215	-.048	-.518	.605	.002
M x A x C	-.064	.116	-.048	-.553	.581	.002
W x M x A x C	.018	.215	.007	.082	.935	.000

Table 16. Regression of dependent variable: BI; $F(15, 132) = 2.451$, ($p = .003$).

	B	S. E.	β	*t*	*p*	Partial η^2
(Constant)	4.514	.146		30.952	.000	.879
Worldview	-.985	.270	-.309	-3.652	.000	.092
Mortality salience	.091	.146	.049	.623	.534	.003
Argument quality	.404	.146	.220	2.769	.006	.054
Expertise cue	-.154	.146	-.084	-1.058	.292	.009
A x C	-.115	.146	-.063	-.789	.431	.005
M x C	-.108	.146	-.059	-.740	.460	.004
M x A	-.087	.146	-.048	-.600	.550	.003
M x W	-.660	.270	-.207	-2.448	.016	.043
W x C	-.360	.270	-.112	-1.335	.184	.013
W x A	-.284	.270	-.089	-1.053	.294	.008
M x W x C	.362	.270	.113	1.343	.182	.013
M x W x A	.049	.270	.015	.181	.856	.000
W x A x C	-.171	.270	-.054	-.635	.527	.003
M x A x C	-.376	.146	-.204	-2.578	.011	.048
W x M x A x C	-.216	.270	-.067	-.802	.424	.005

Appendix B.

Figures

Figure 1. Comparison of worldview to analogous constructs.

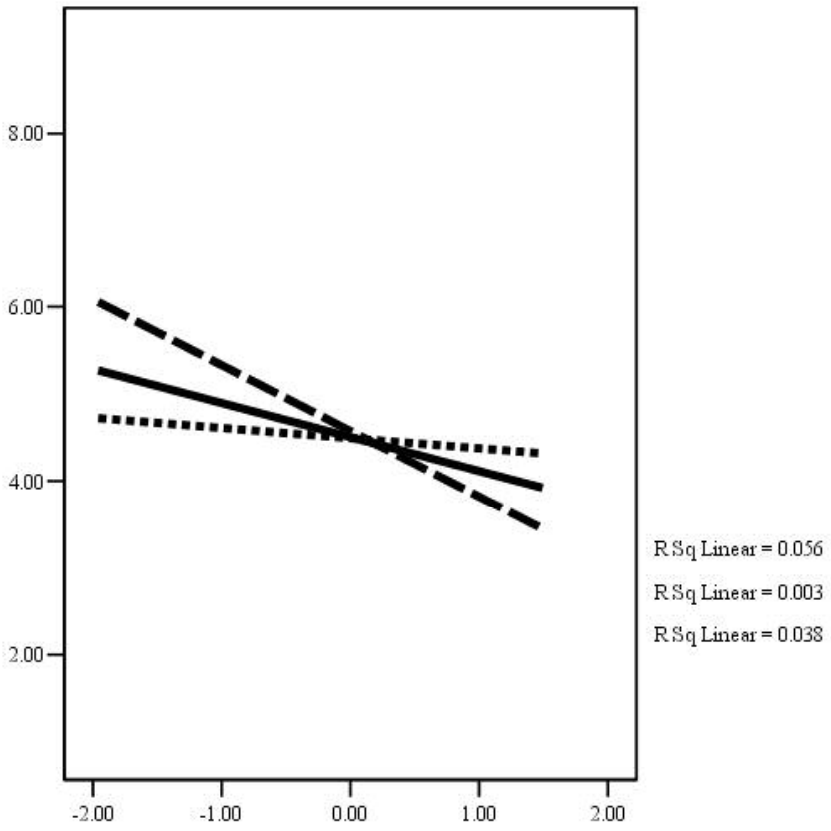
Theorist	Construct/ Metaphor	Attributes/ Characteristics
Koltko-Rivera	Worldview	Core dimensions
Wittgenstein	Worldpicture/ Lens; Riverbed	Icons, narratives
Kuhn	Paradigm	exemplars
Lippmann	Pseudoenvironment/ Pictures in our heads	stereotypes

Figure 2. Counterbalanced order.

1	(R)	MS	NC	CAS	AAR	Ad_{A0}	DV	Ad_{B1}	DV	F
2	(R)	TV	NC	CAS	AAR	Ad_{A0}	DV	Ad_{B1}	DV	F
3	(R)	MS	NC	CAS	AAR	Ad_{a0}	DV	Ad_{b1}	DV	F
4	(R)	TV	NC	CAS	AAR	Ad_{a0}	DV	Ad_{b1}	DV	F
5	(R)	MS	NC	CAS	AAR	Ad_{B0}	DV	Ad_{A1}	DV	F
6	(R)	TV	NC	CAS	AAR	Ad_{B0}	DV	Ad_{A1}	DV	F
7	(R)	MS	NC	CAS	AAR	Ad_{b0}	DV	Ad_{a1}	DV	F
8	(R)	TV	NC	CAS	AAR	Ad_{b0}	DV	Ad_{a1}	DV	F
9	(R)	MS	NC	CAS	AAR	Ad_{A1}	DV	Ad_{B0}	DV	F
10	(R)	TV	NC	CAS	AAR	Ad_{A1}	DV	Ad_{B0}	DV	F
11	(R)	MS	NC	CAS	AAR	Ad_{a1}	DV	Ad_{b0}	DV	F
12	(R)	TV	NC	CAS	AAR	Ad_{a1}	DV	Ad_{b0}	DV	F
13	(R)	MS	NC	CAS	AAR	Ad_{B1}	DV	Ad_{A0}	DV	F
14	(R)	TV	NC	CAS	AAR	Ad_{B1}	DV	Ad_{A0}	DV	F
15	(R)	MS	NC	CAS	AAR	Ad_{b1}	DV	Ad_{a0}	DV	F
16	(R)	TV	NC	CAS	AAR	Ad_{b1}	DV	Ad_{a0}	DV	F

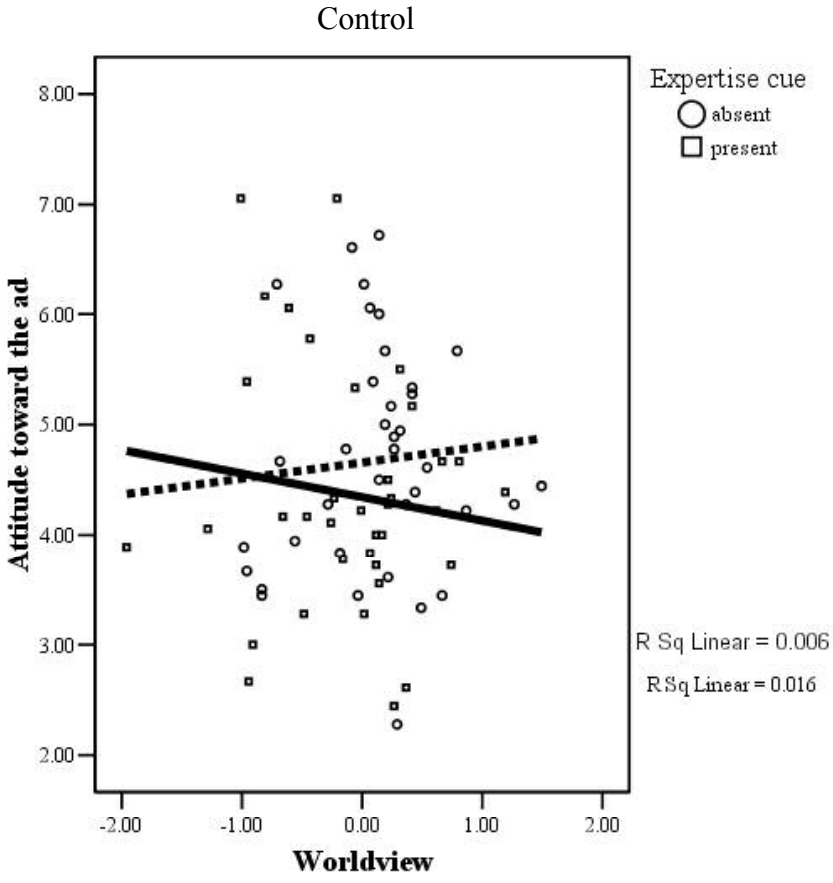
Note:
Number = counterbalanced sequence; MS = mortality salience manipulation; TV = control manipulation (watching television); NC = Need for Closure Scale; CAS = Constructivist Assumptions Scale; AAR = Attitudes About Reality Scale; Ad subscripts: A = "Ritual" ad; B = "Quest" ad; upper-case letter = strong argument; lower-case letter = weak argument; 1 = expertise cue; 0 = no expertise cue; DV = battery of dependent measures and manipulation checks (A_{ad}, A_{brand}, behavioral intentions, perceived argument quality, perceived expertise, perceived credibility); F = final manipulation (finding a winning lottery ticket).

Figure 3. Main effect of worldview on dependent variables.



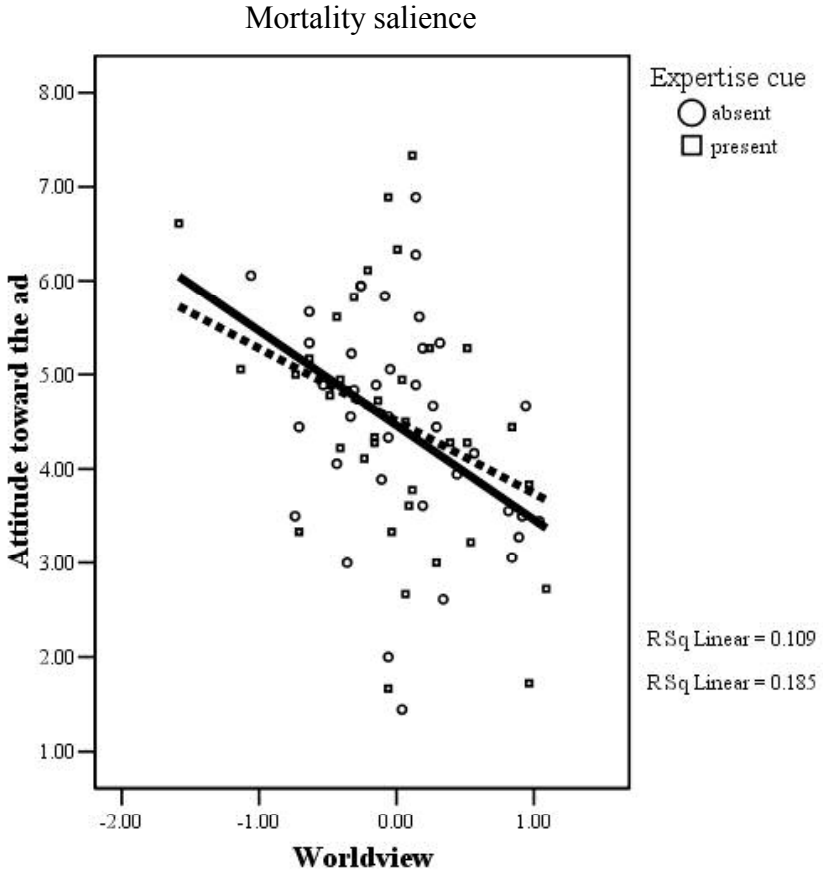
Note: Solid line = A_{ad}; dotted line = A_{brand}; dashed line = behavioral intentions.

Figure 4a. Graph of 3-way interaction of mortality salience, worldview, and expertise cue for A_{ad}.



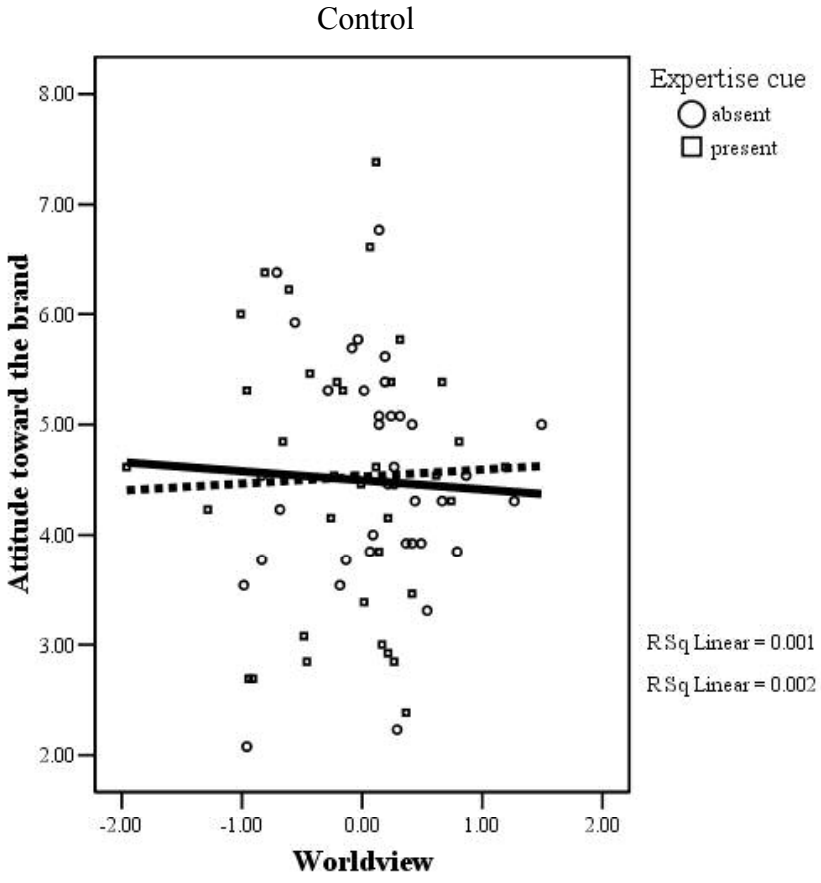
Note: Solid line = present; dotted line = absent

Figure 4b. Graph of 3-way interaction of mortality salience, worldview, and expertise cue for A_{ad}.



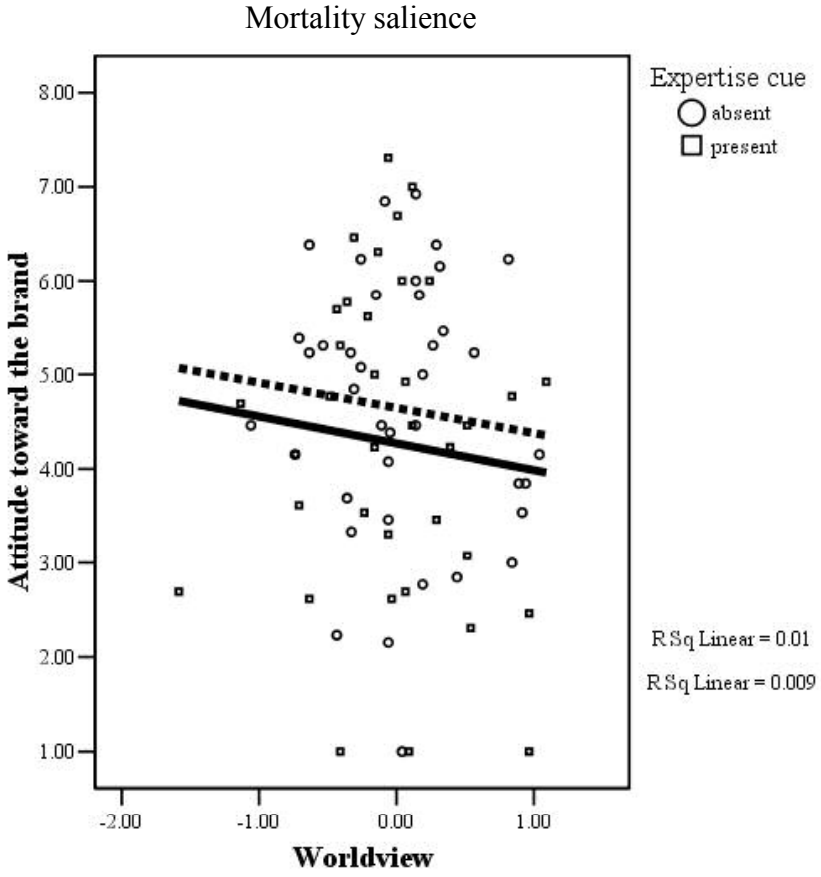
Note: Solid line = present; dotted line = absent

Figure 5a. Graph of 3-way interaction of mortality salience, worldview, and expertise cue for A_{brand}.



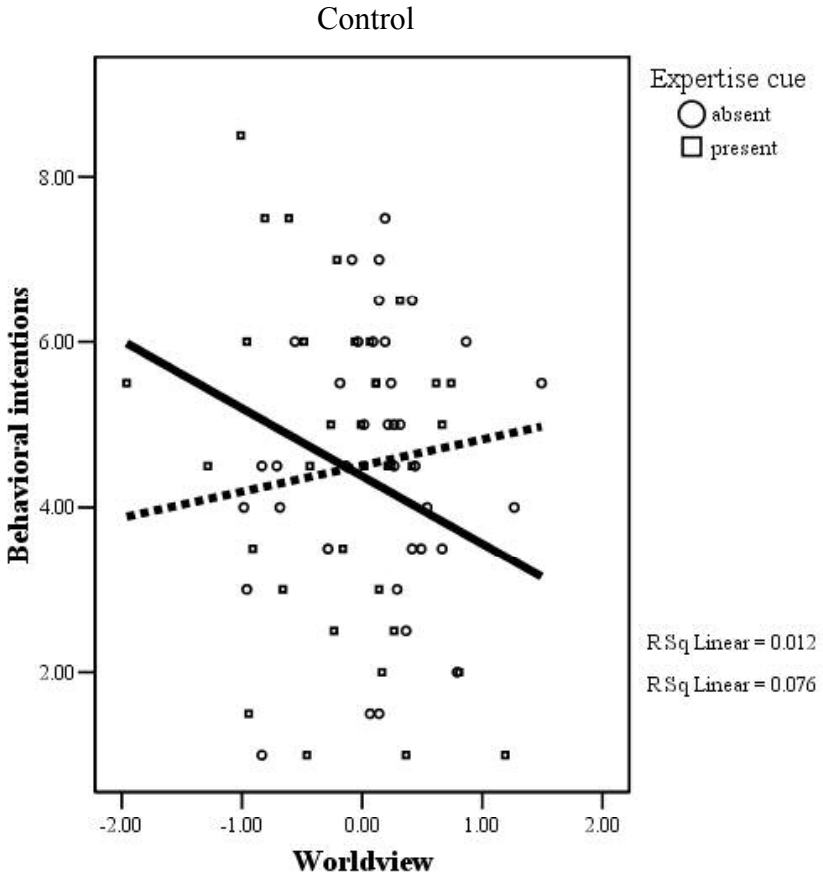
Note: Solid line = present; dotted line = absent

Figure 5b. Graph of 3-way interaction of mortality salience, worldview, and expertise cue for A_{brand}.



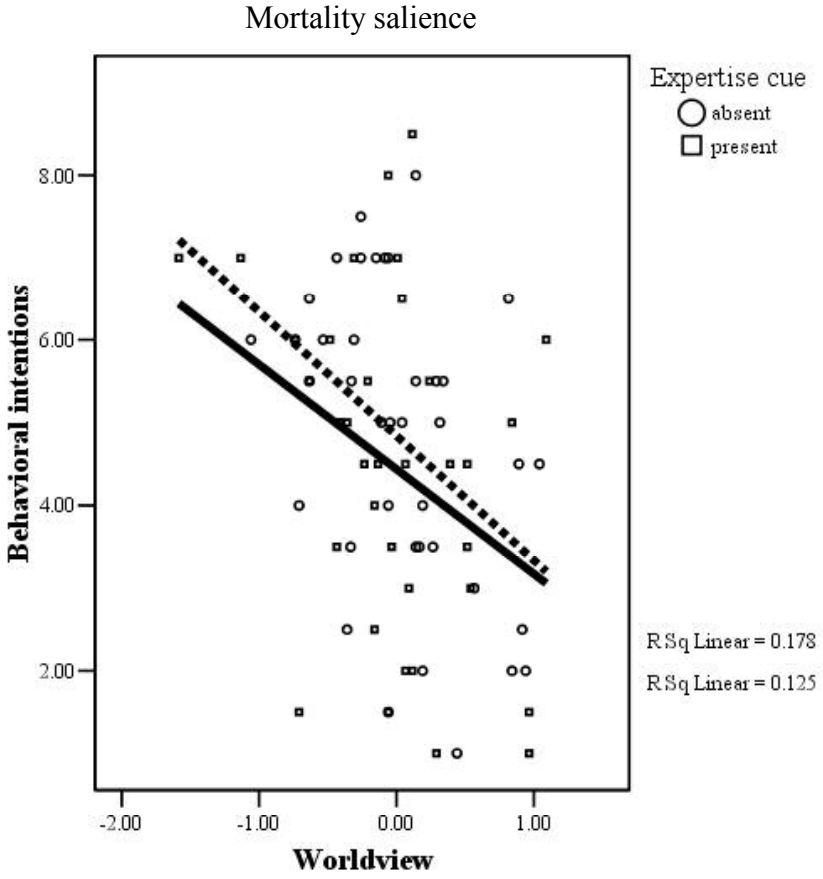
Note: Solid line = present; dotted line = absent

Figure 6a. Graph of 3-way interaction of mortality salience, worldview, and expertise cue for behavioral intentions.



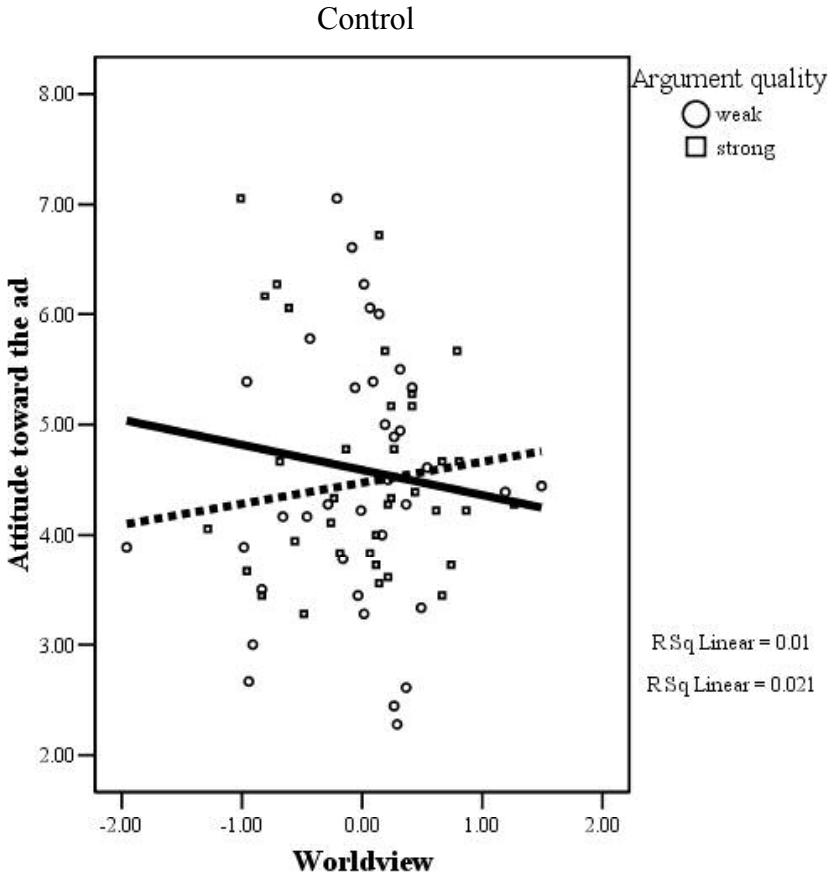
Note: Solid line = present; dotted line = absent

Figure 6b. Graph of 3-way interaction of mortality salience, worldview, and expertise cue for behavioral intentions.



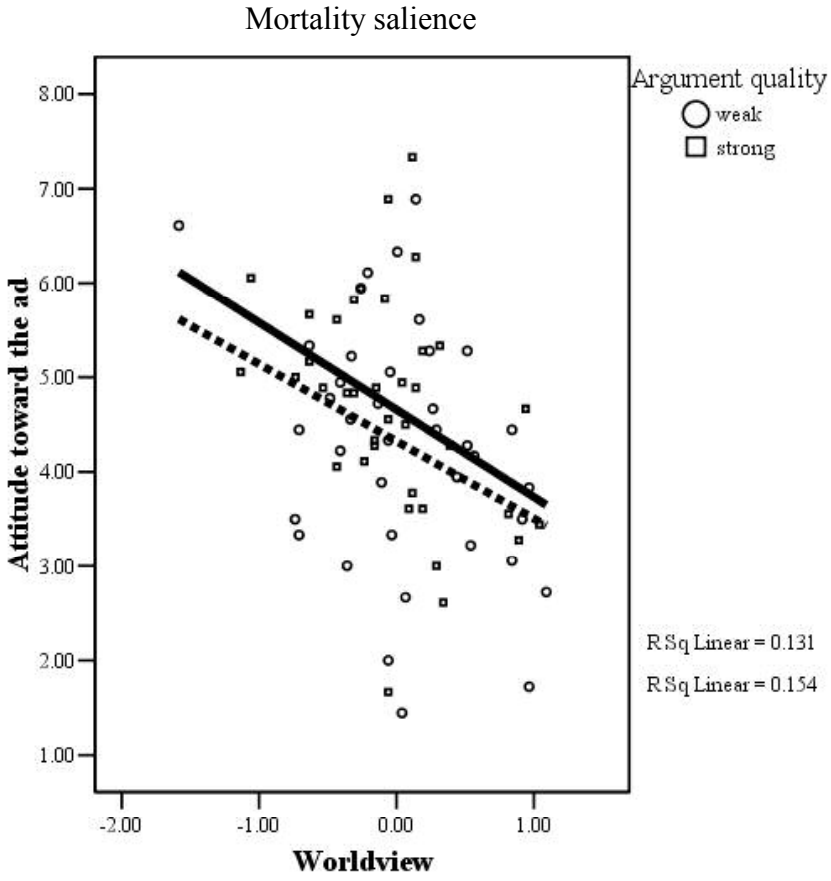
Note: Solid line = present; dotted line = absent

Figure 7a. Graph of 3-way interaction of mortality salience, worldview, and argument quality for A_{ad}.



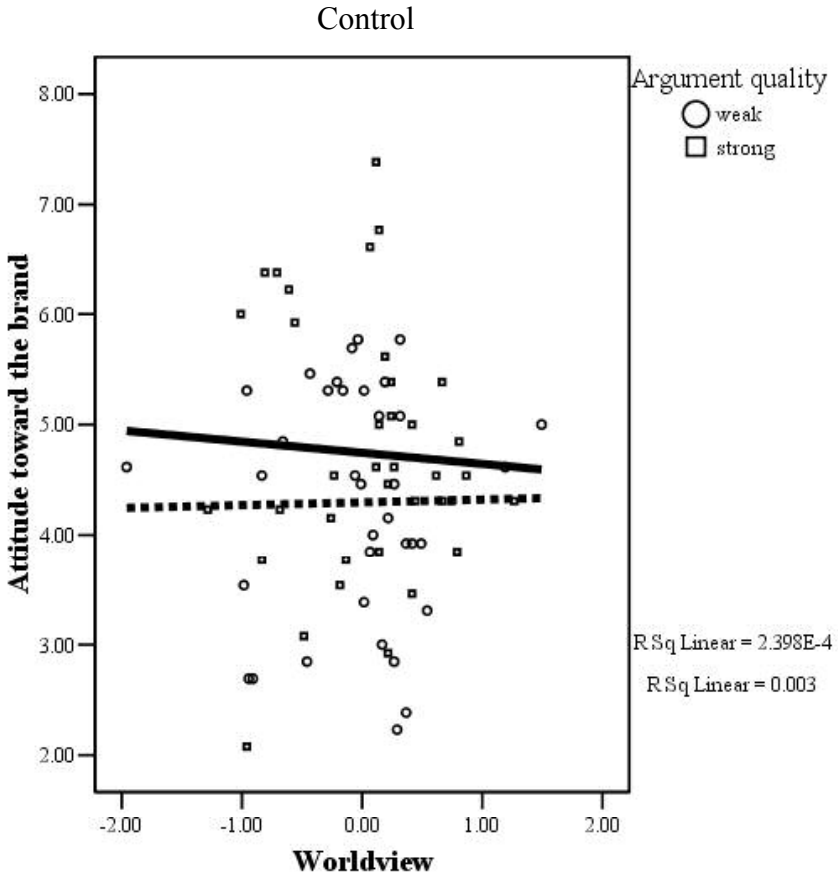
Note: Solid line = strong; dotted line = weak

Figure 7b. Graph of 3-way interaction of mortality salience, worldview, and argument quality for A_{ad}.



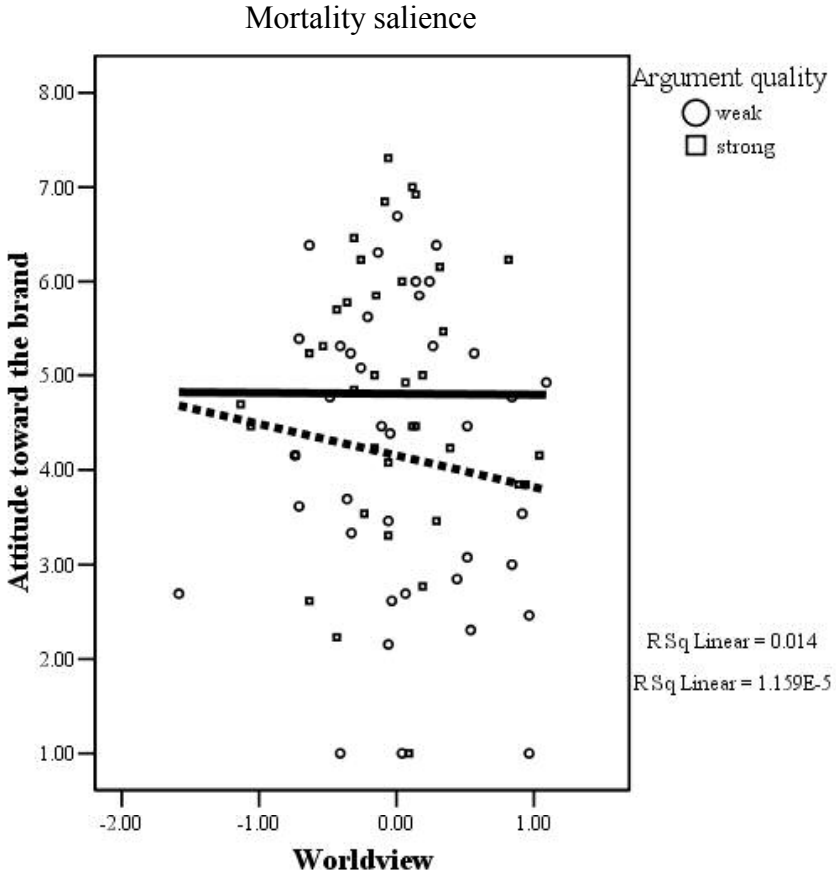
Note: Solid line = strong; dotted line = weak

Figure 8a. Graph of 3-way interaction of mortality salience, worldview, and argument quality for A_{brand}.



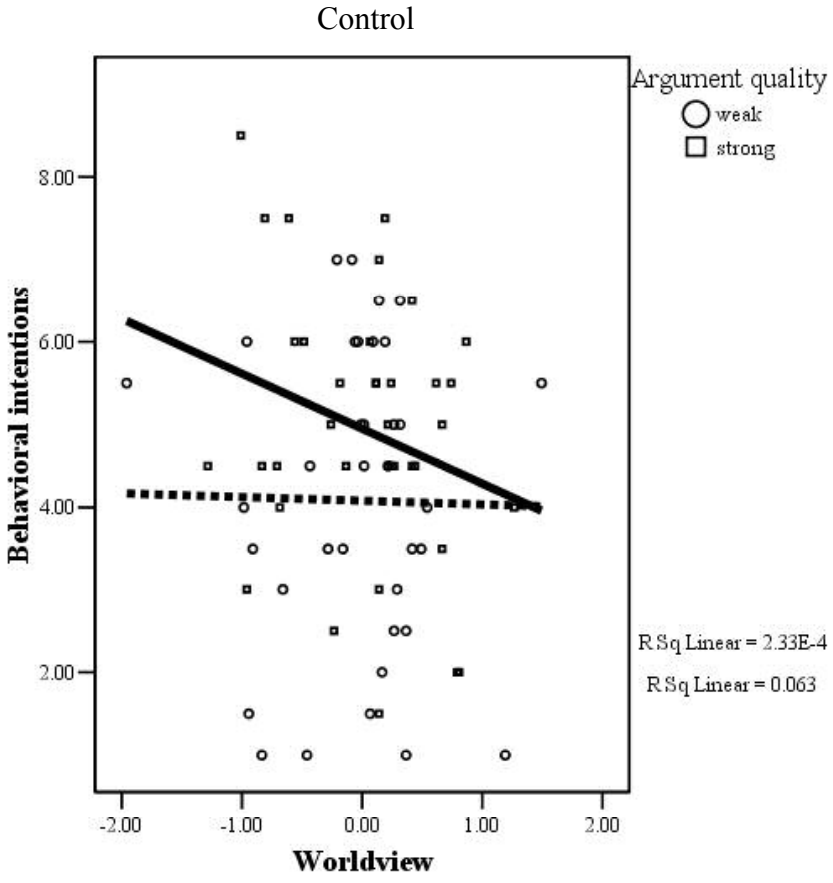
Note: Solid line = strong; dotted line = weak

Figure 8b. Graph of 3-way interaction of mortality salience, worldview, and argument quality for A_{brand}.



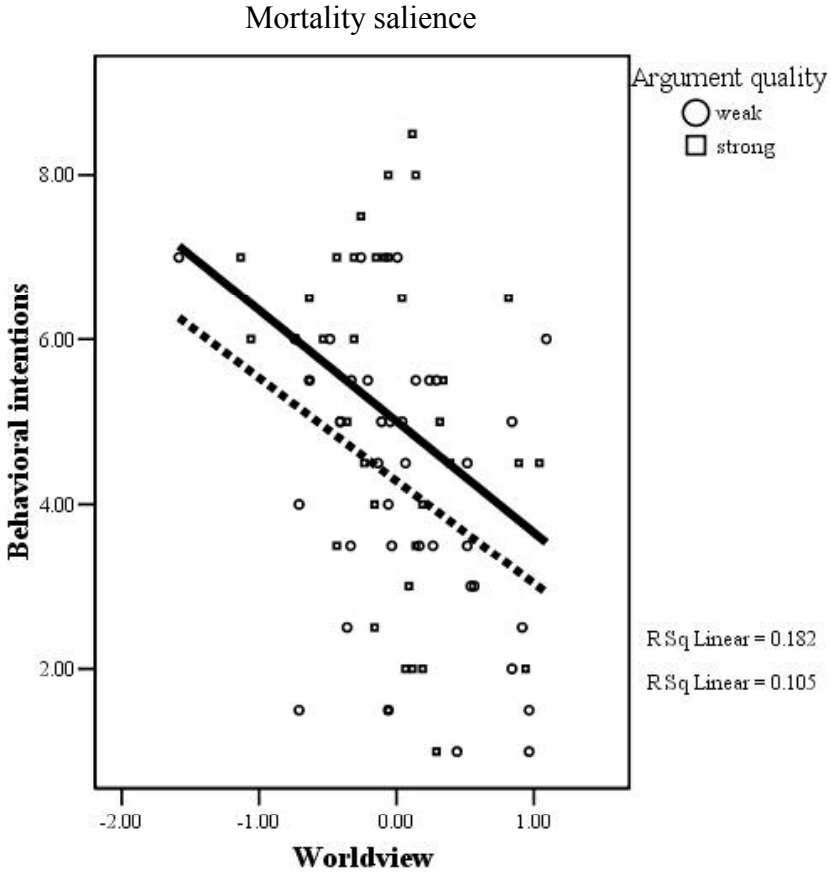
Note: Solid line = strong; dotted line = weak

Figure 9a. Graph of 3-way interaction of mortality salience, worldview, and argument quality for behavioral intentions.



Note: Solid line = strong; dotted line = weak

Figure 9b. Graph of 3-way interaction of mortality salience, worldview, and argument quality for behavioral intentions.



Note: Solid line = strong; dotted line = weak

Figure 10a. Three-way interaction of expertise cue, argument quality, and mortality salience for A_{ad}.

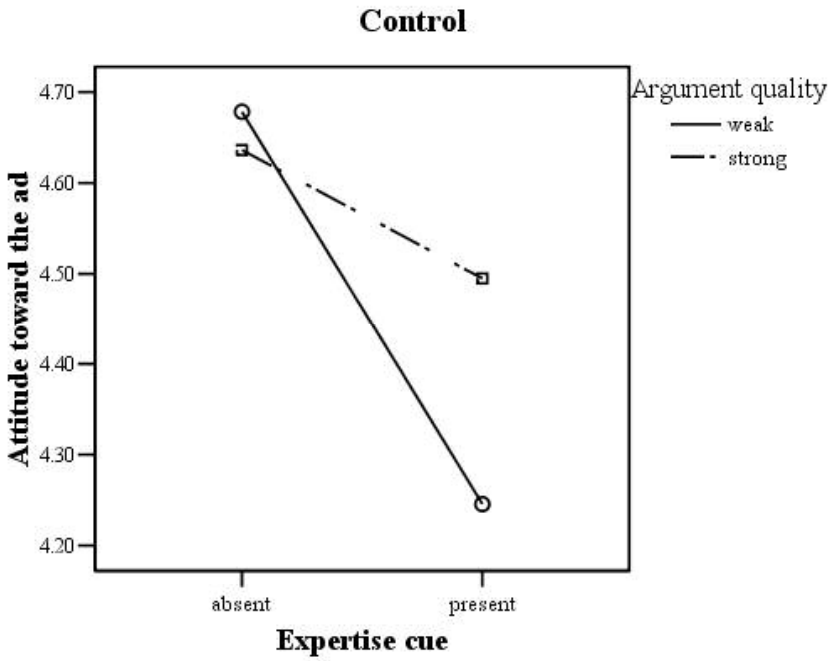


Figure 10b. Three-way interaction of expertise cue, argument quality, and mortality salience for A_{ad}.

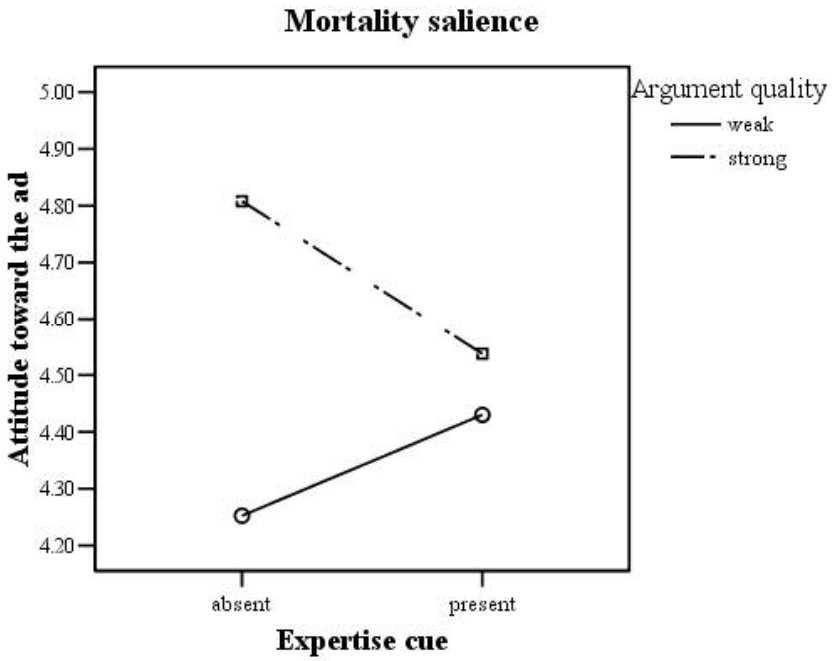


Figure 11a. Three-way interaction of expertise cue, argument quality, and mortality salience for A_{brand}.

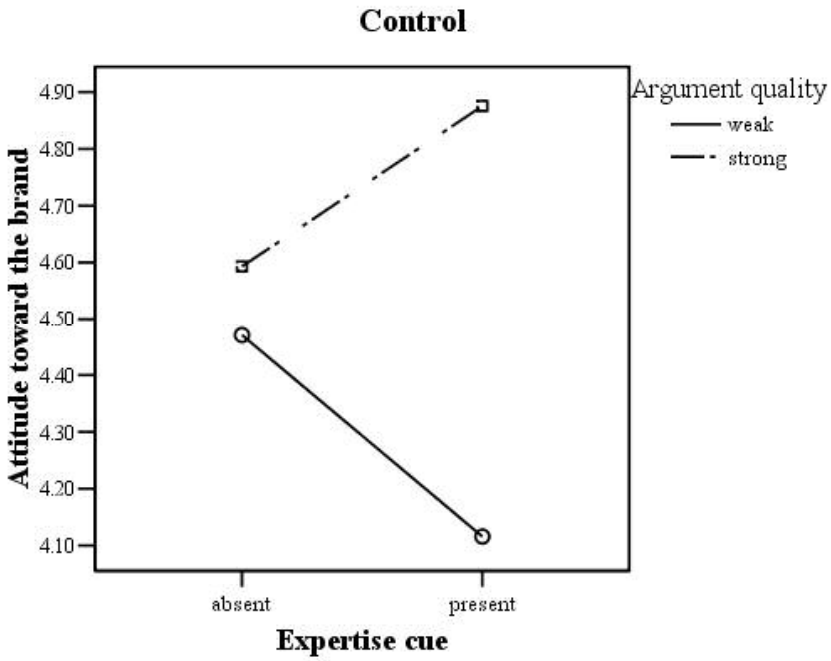


Figure 11b. Three-way interaction of expertise cue, argument quality, and mortality salience for A_{brand}.

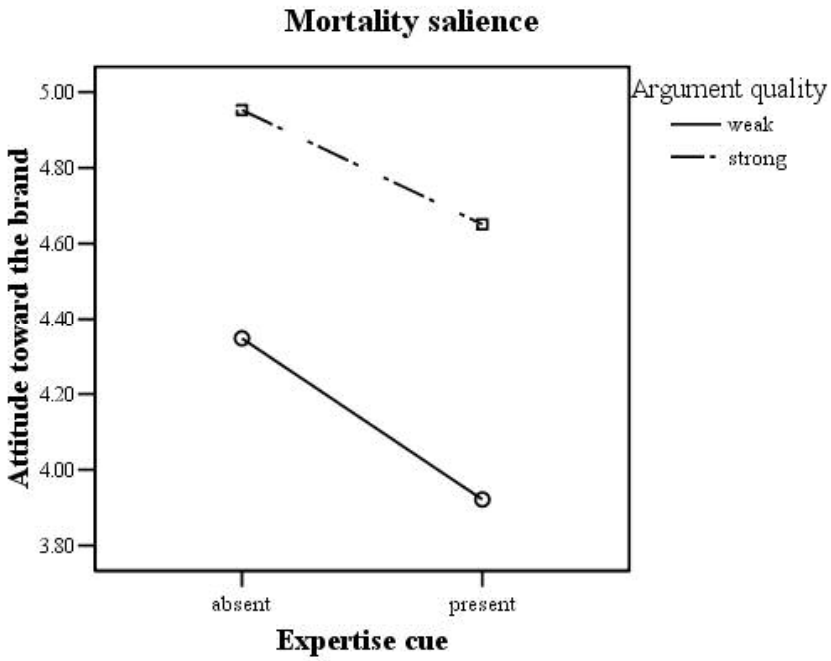


Figure 12a. Three-way interaction of expertise cue, argument quality, and mortality salience for behavioral intentions.

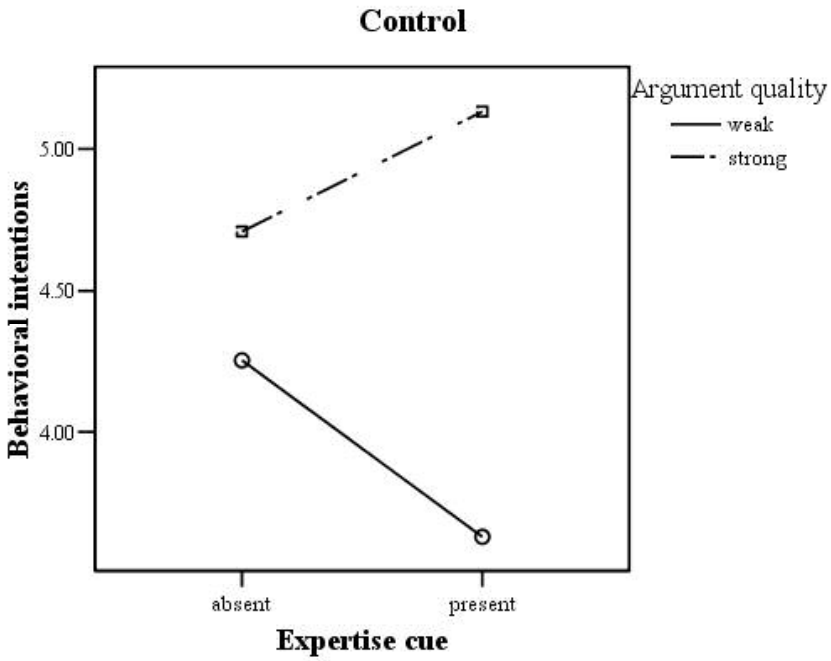


Figure 12b. Three-way interaction of expertise cue, argument quality, and mortality salience for behavioral intentions.

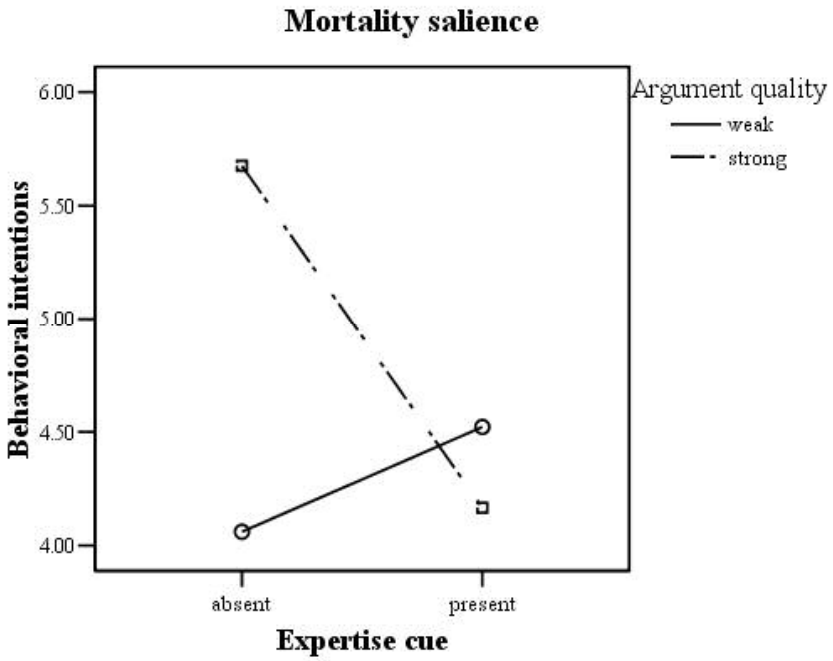
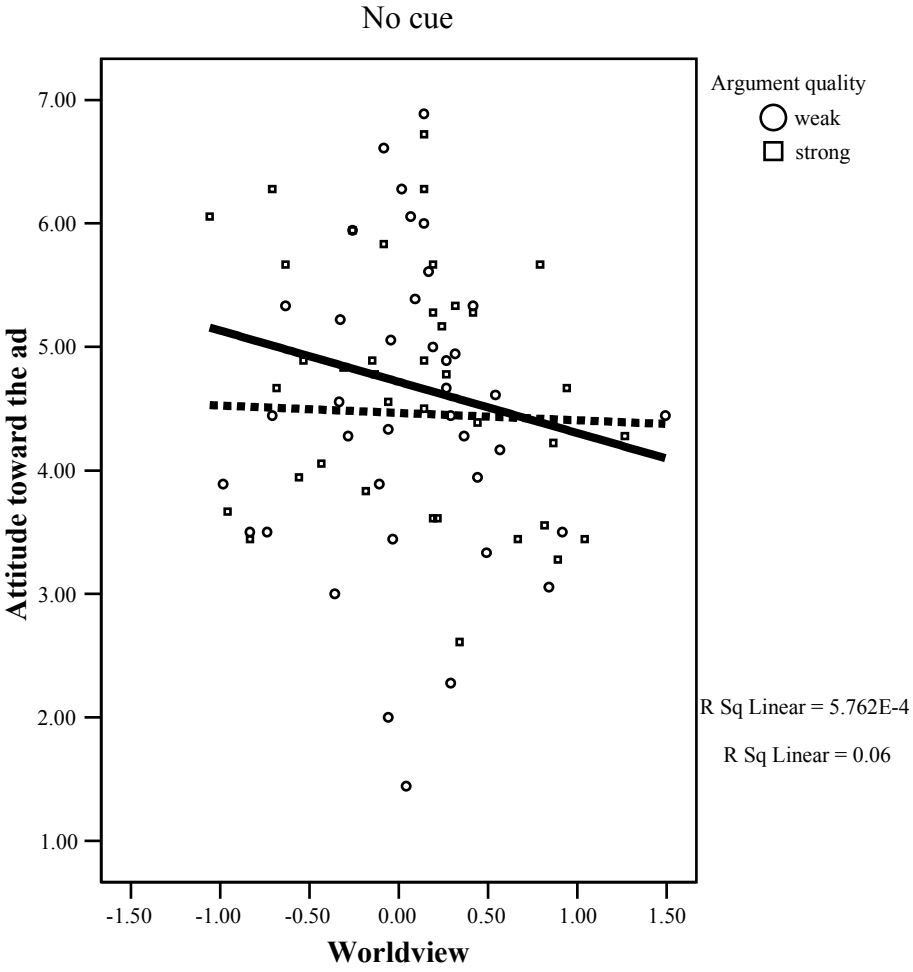
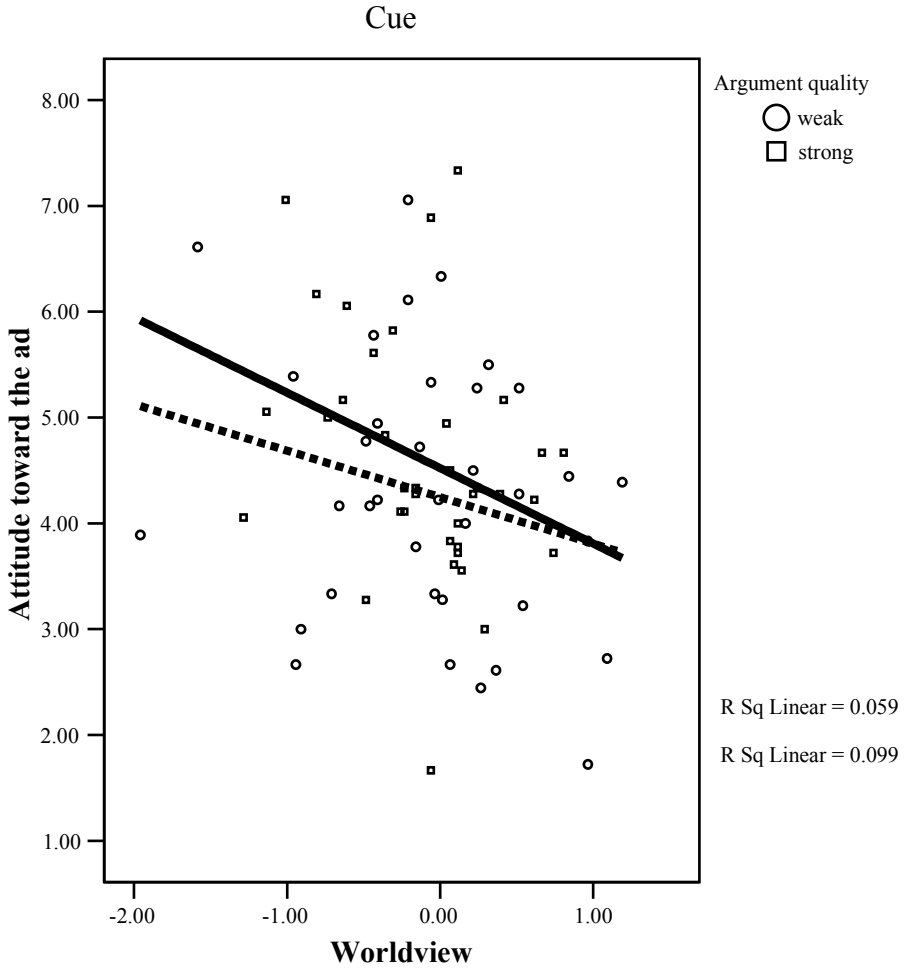


Figure 13a. Three-way interaction of worldview, argument quality, and expertise cue for A_{ad}.



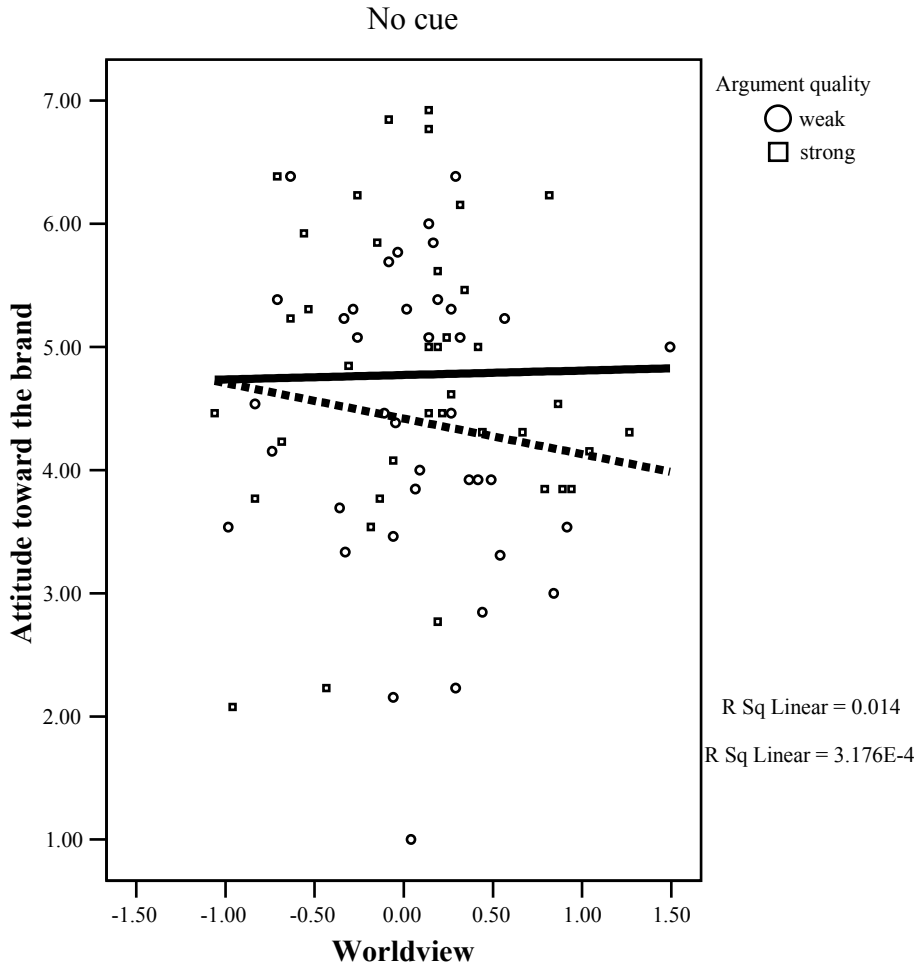
Note: Solid line = strong; dashed line = weak

Figure 13b. Three-way interaction of worldview, argument quality, and expertise cue for A_{ad}.



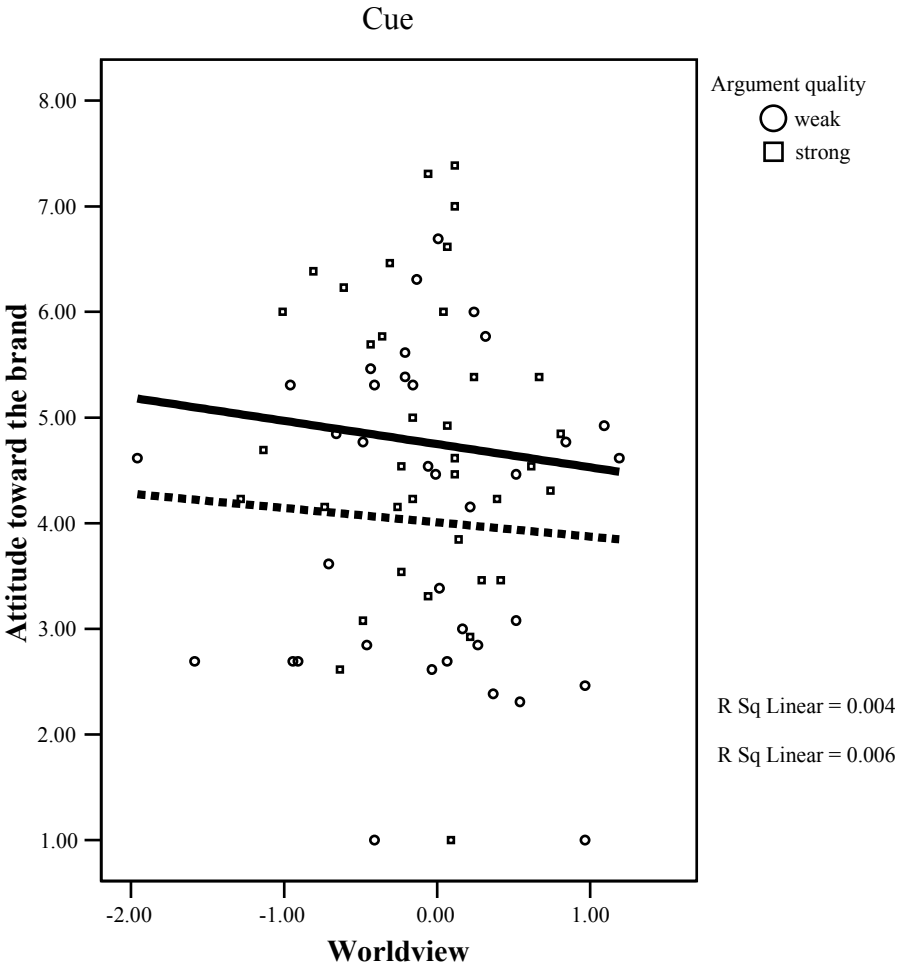
Note: Solid line = strong; dashed line = weak

Figure 14a. Three-way interaction of worldview, argument quality, and expertise cue for A_{brand}.



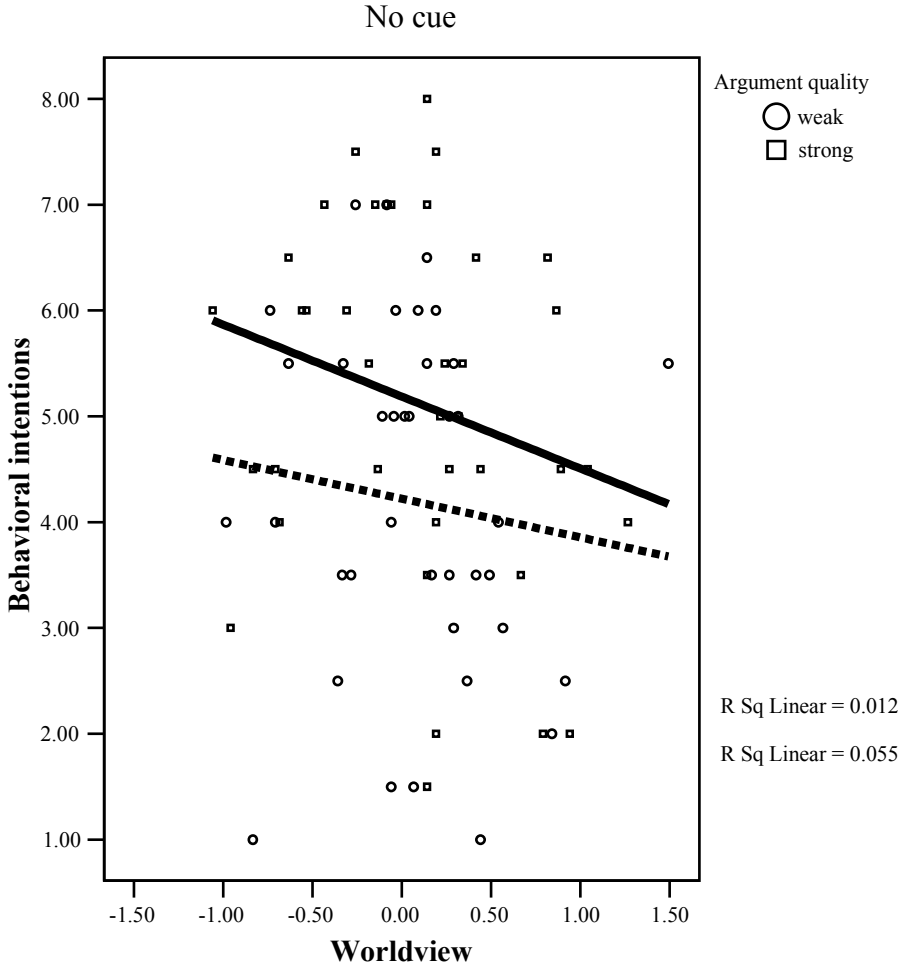
Note: Solid line = strong; dashed line = weak

Figure 14b. Three-way interaction of worldview, argument quality, and expertise cue for A_{brand}.



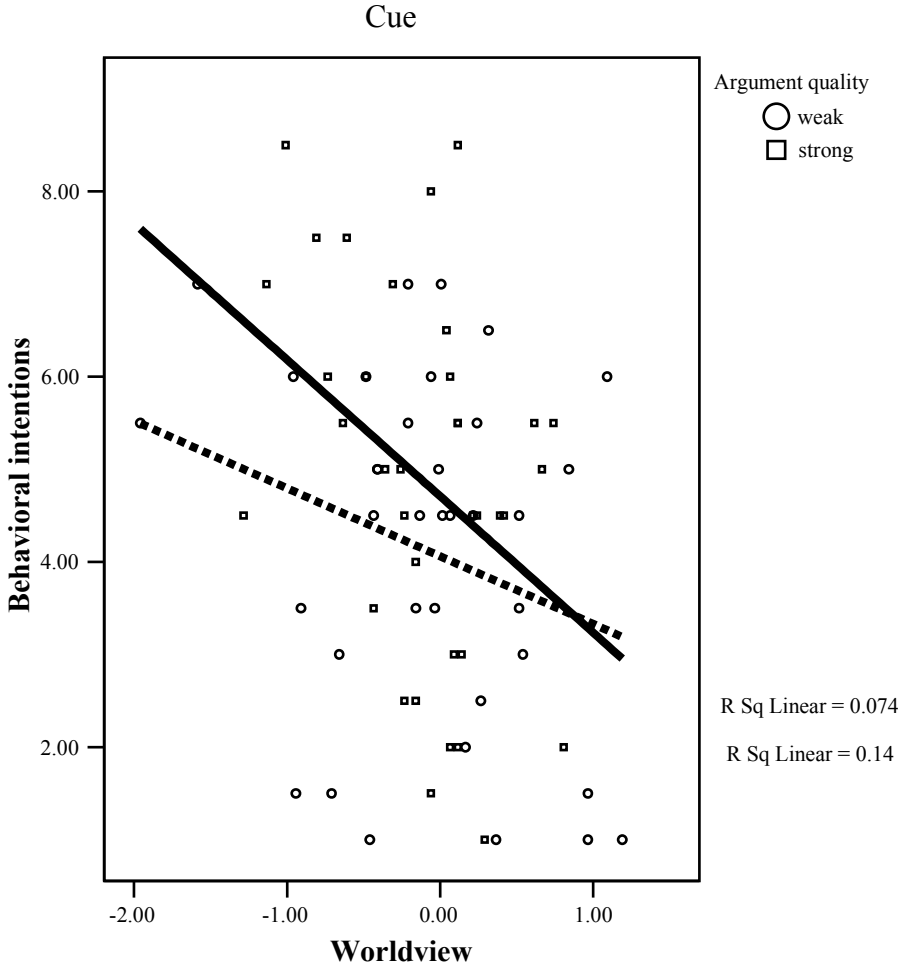
Note: Solid line = strong; dashed line = weak

Figure 15a. Three-way interaction of worldview, argument quality, and expertise cue for behavioral intentions.



Note: Solid line = strong; dashed line = weak

Figure 15b. Three-way interaction of worldview, argument quality, and expertise cue for behavioral intentions.



Note: Solid line = strong; dashed line = weak

Figure 16. Mortality salience and expertise cue for A_{ad}, given weak arguments.

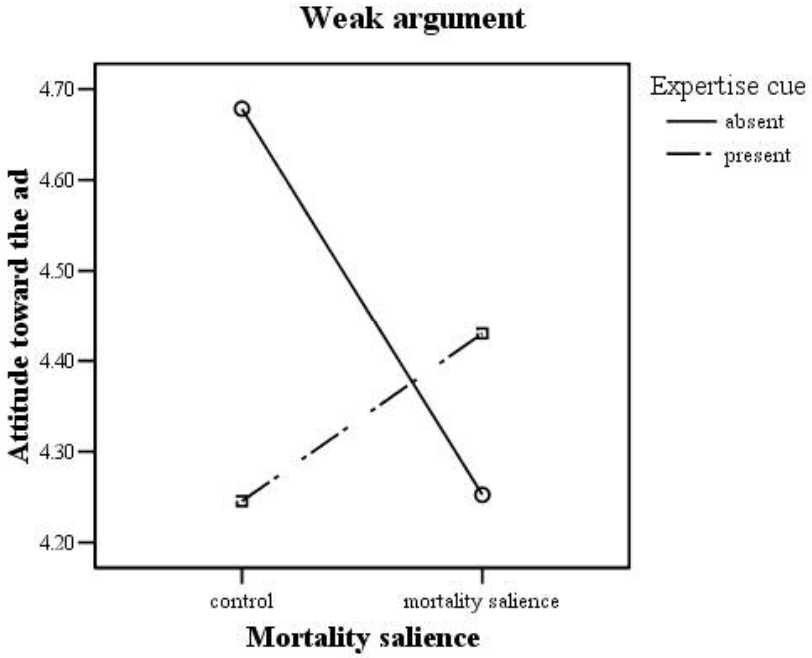


Figure 17. Mortality salience and expertise cue for A_{brand}, given weak arguments.

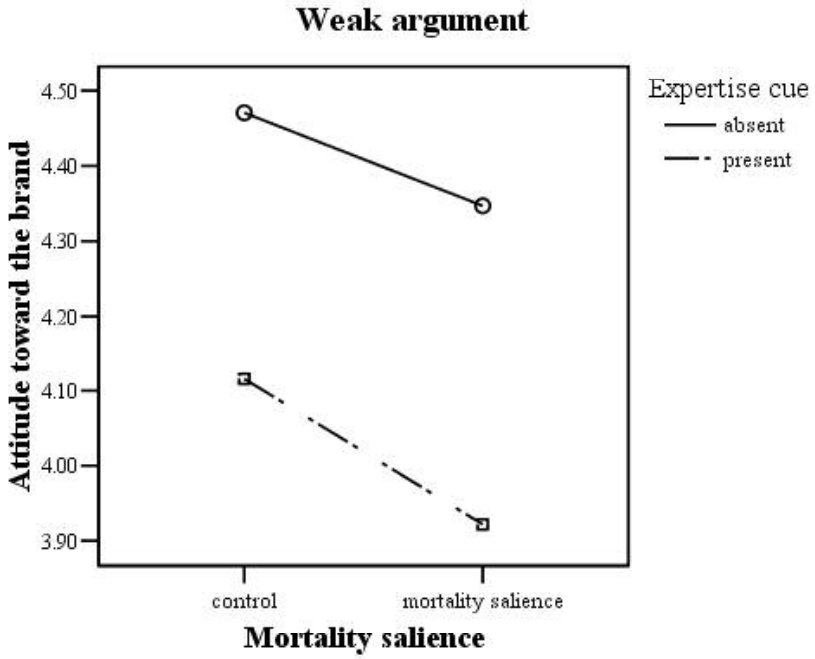


Figure 18. Mortality salience and expertise cue for behavioral intentions, given weak arguments.

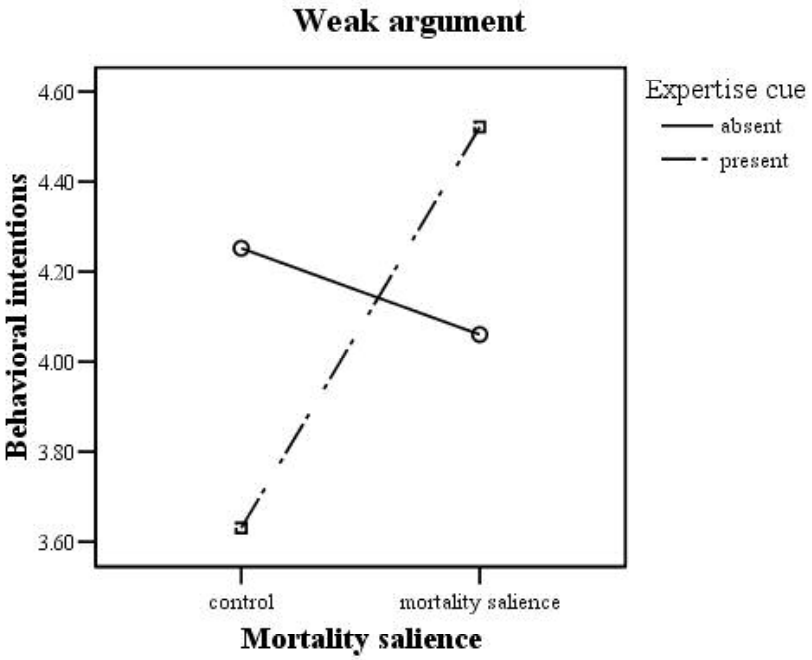


Figure 19. Interaction of mortality salience and argument quality for A_{ad}, given no cue.

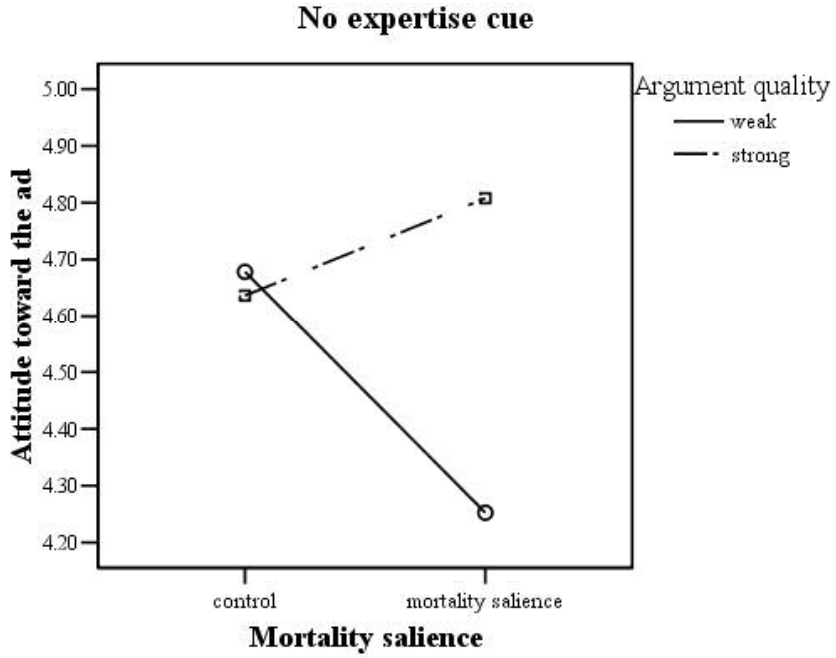


Figure 20. Interaction of mortality salience and argument quality for A_{brand}, given no cue.

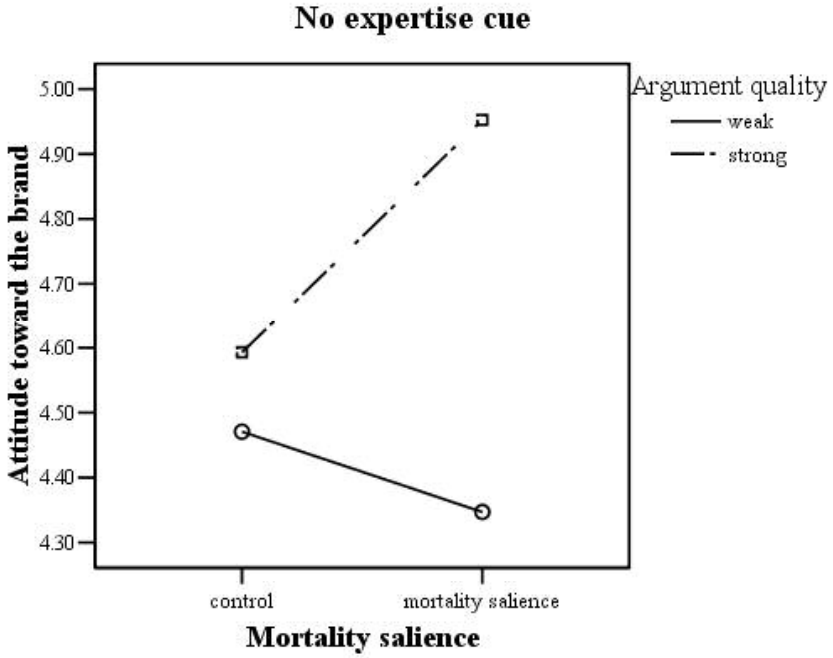


Figure 21. Interaction of mortality salience and argument quality for behavioral intentions, given no cue.

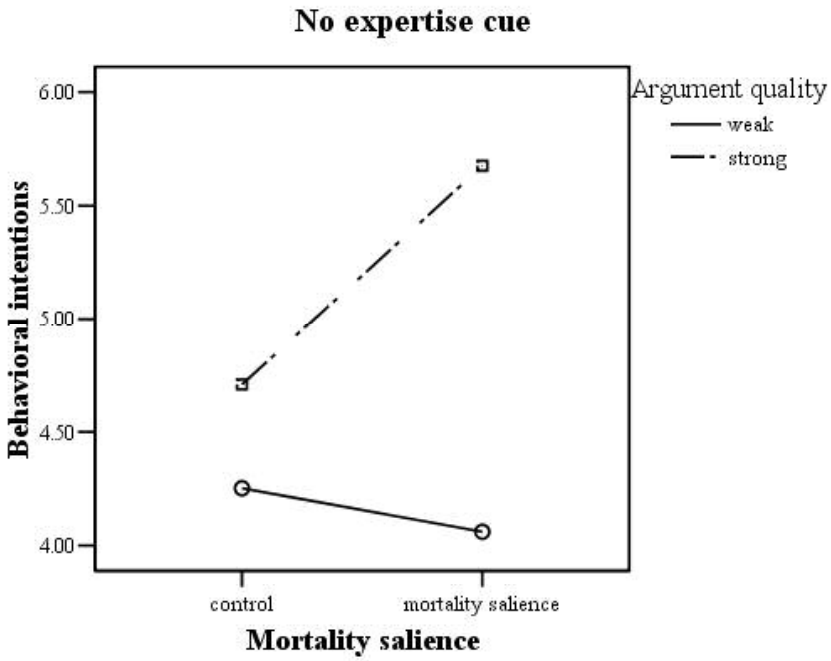
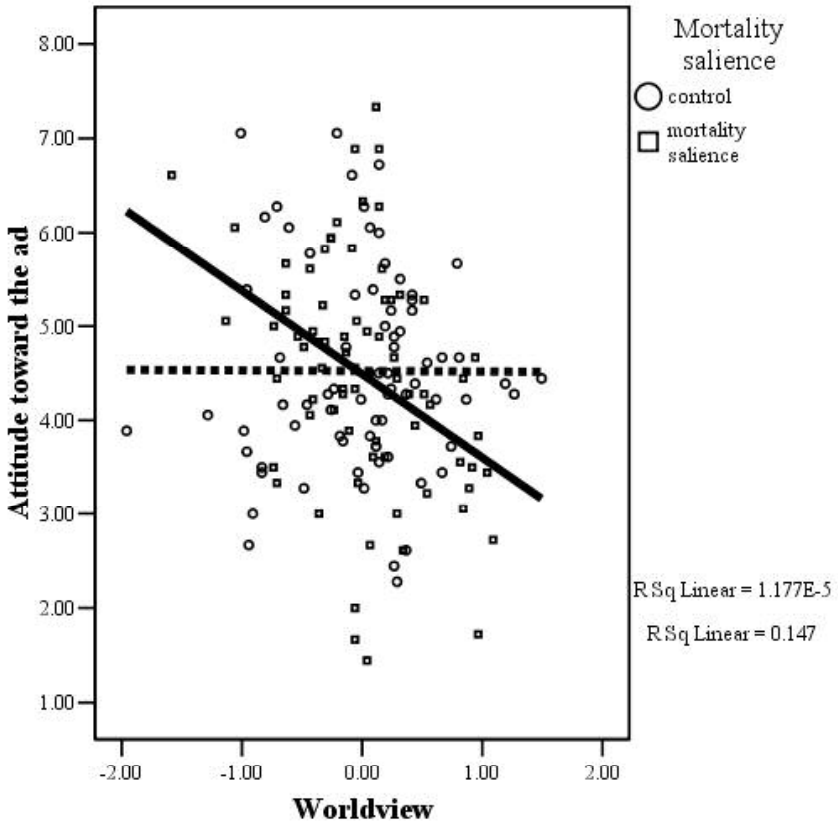
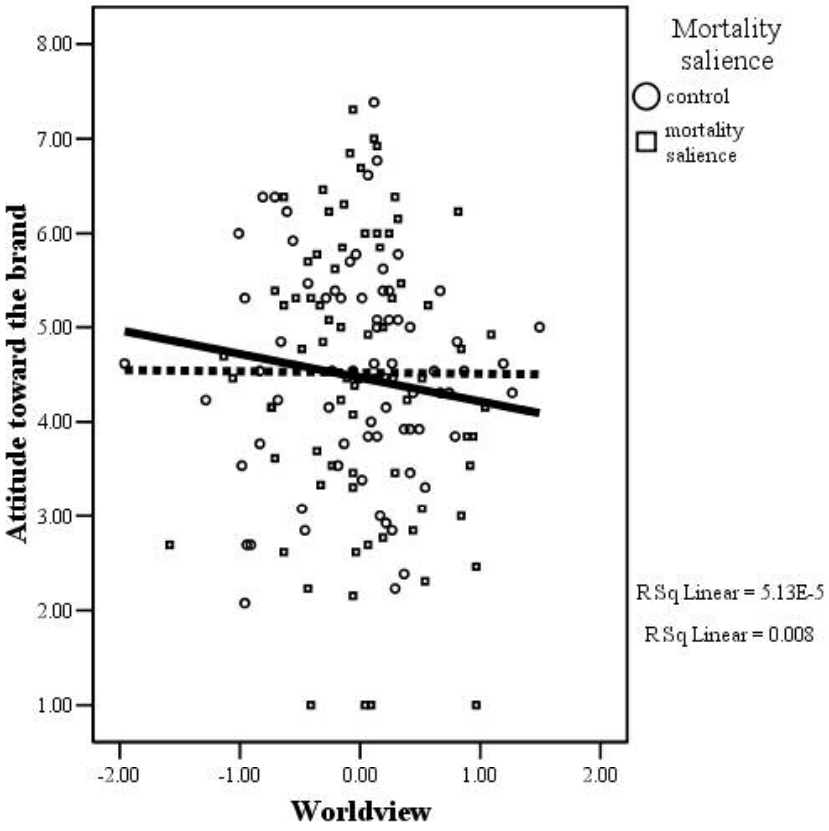


Figure 22. Interaction of mortality salience and worldview for A_{ad}.



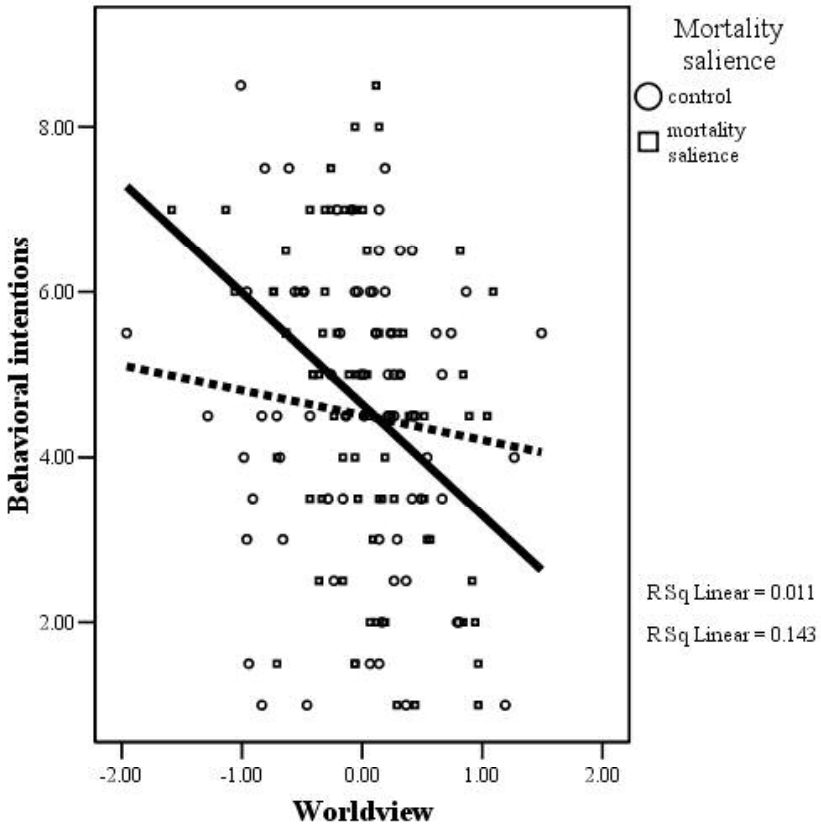
Note: Solid line = mortality salience; dotted line = control

Figure 23. Interaction of mortality salience and worldview for A_{brand}.



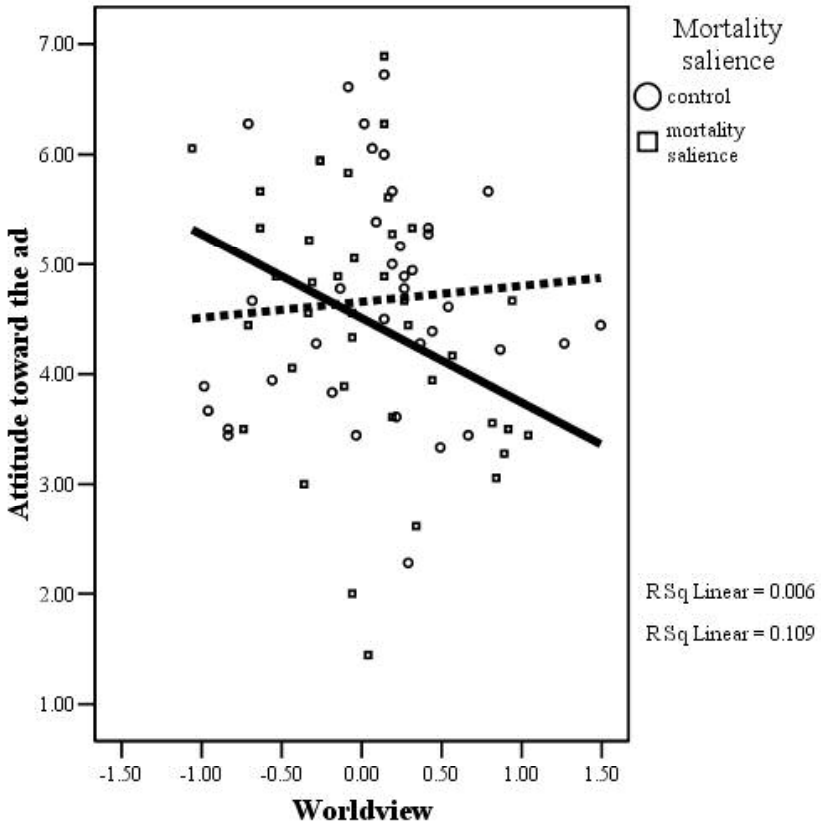
Note: Solid line = mortality salience; dotted line = control

Figure 24. Interaction of mortality salience and worldview for behavioral intentions.



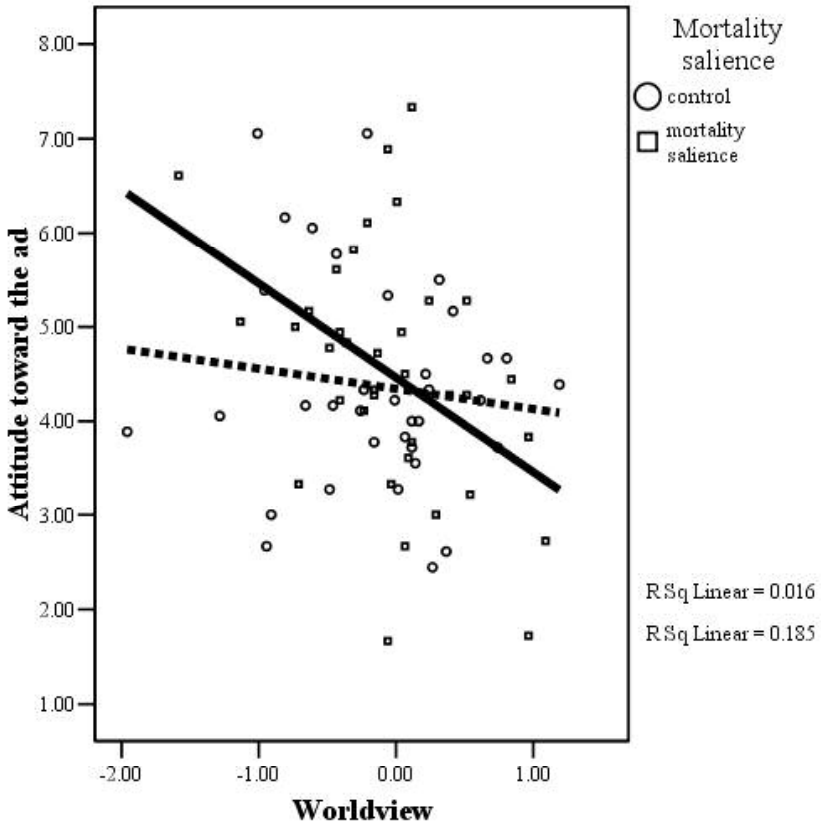
Note: Solid line = mortality salience; dotted line = control

Figure 25a. Interaction of worldview and mortality salience when cue is absent for A_{ad}.



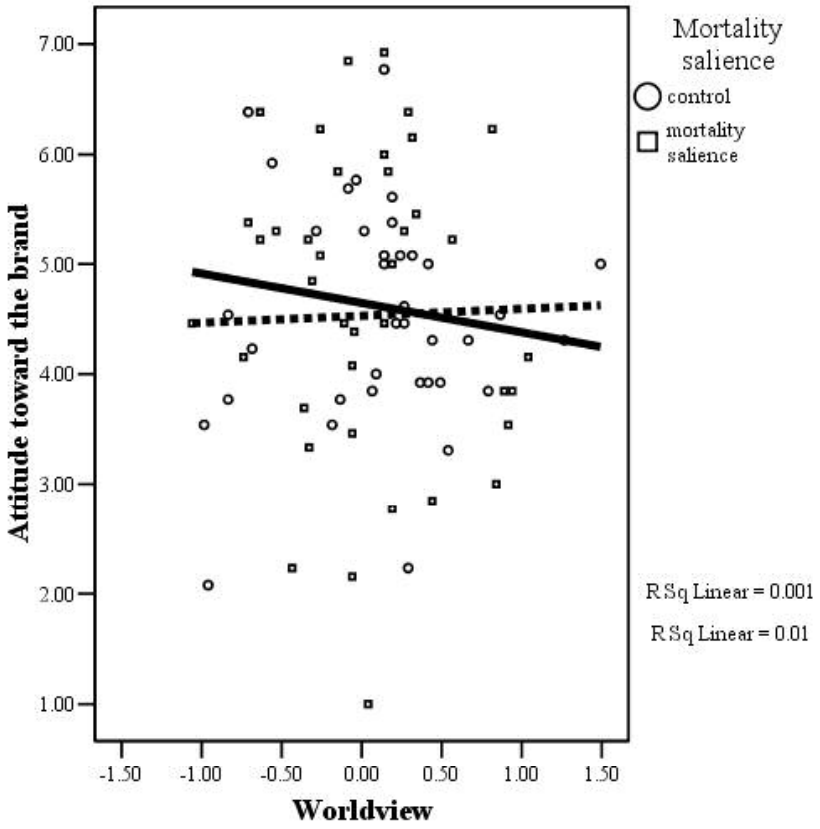
Note: Solid line = mortality salience; dotted line = control

Figure 25b. Interaction of worldview and mortality salience when cue is present for A_{ad}.



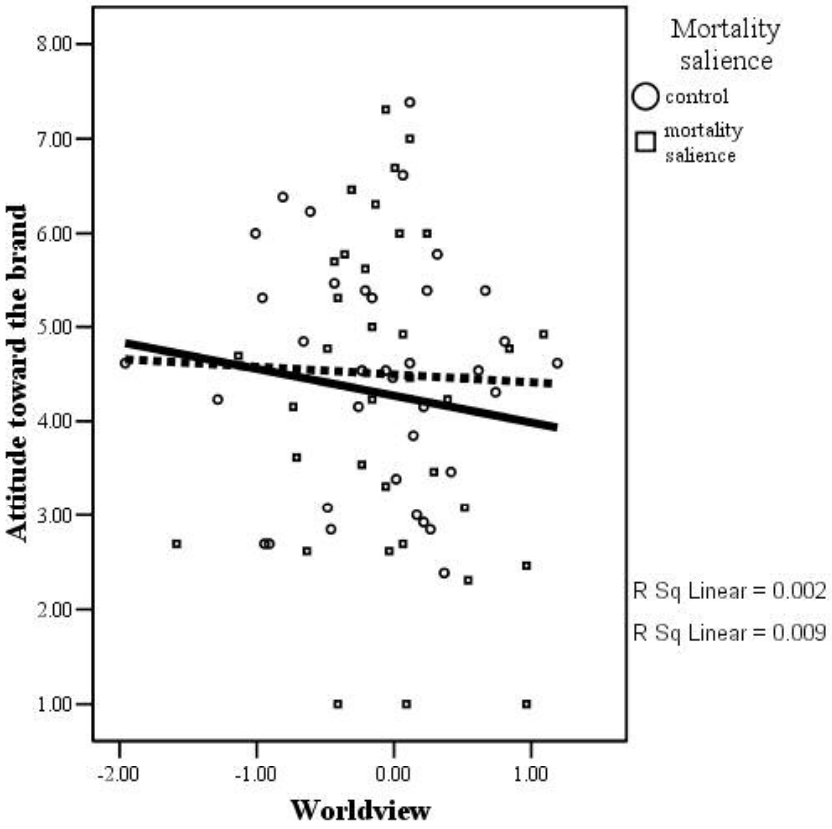
Note: Solid line = mortality salience; dotted line = control

Figure 26a. Interaction of worldview and mortality salience when cue is absent for A_{brand}.



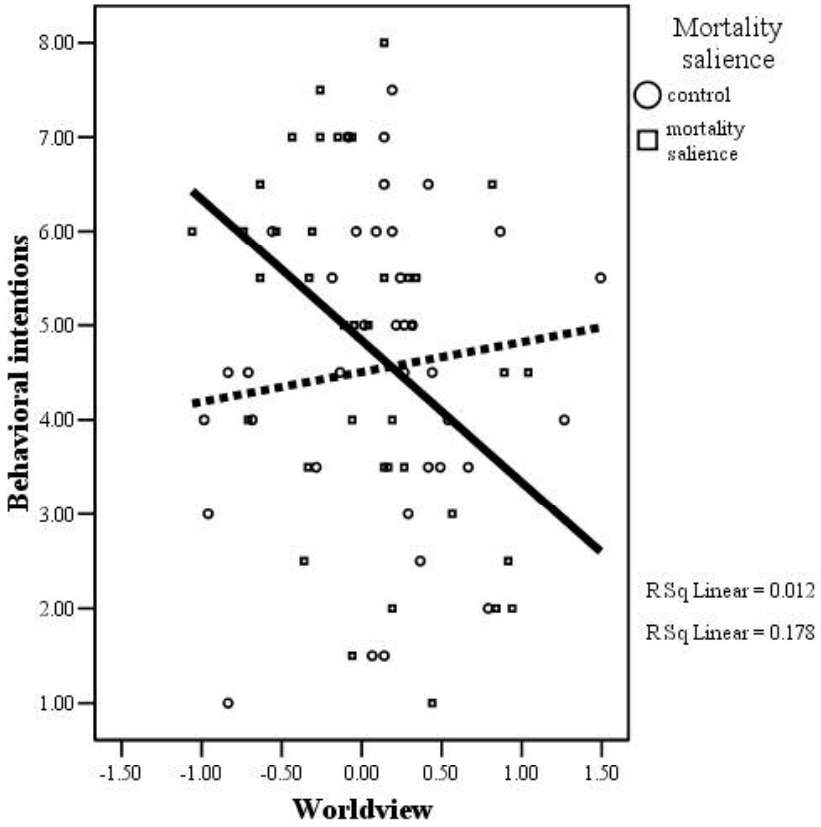
Note: Solid line = mortality salience; dotted line = control

Figure 26b. Interaction of worldview and mortality salience when cue is present for A_{brand}.



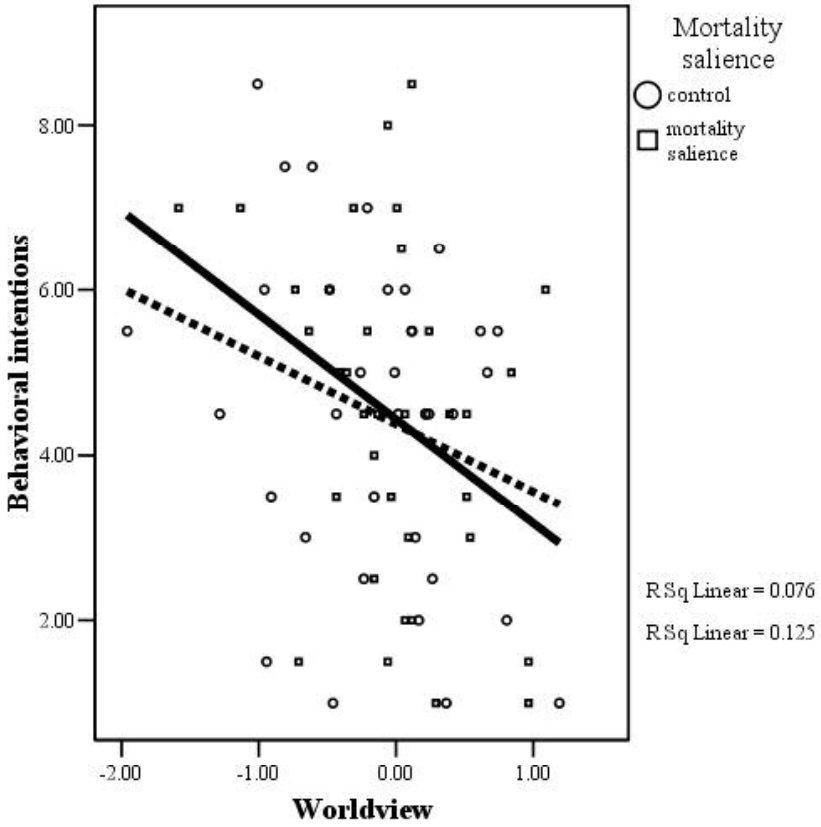
Note: Solid line = mortality salience; dotted line = control

Figure 27a. Interaction of worldview and mortality salience when cue is absent for behavioral intentions.



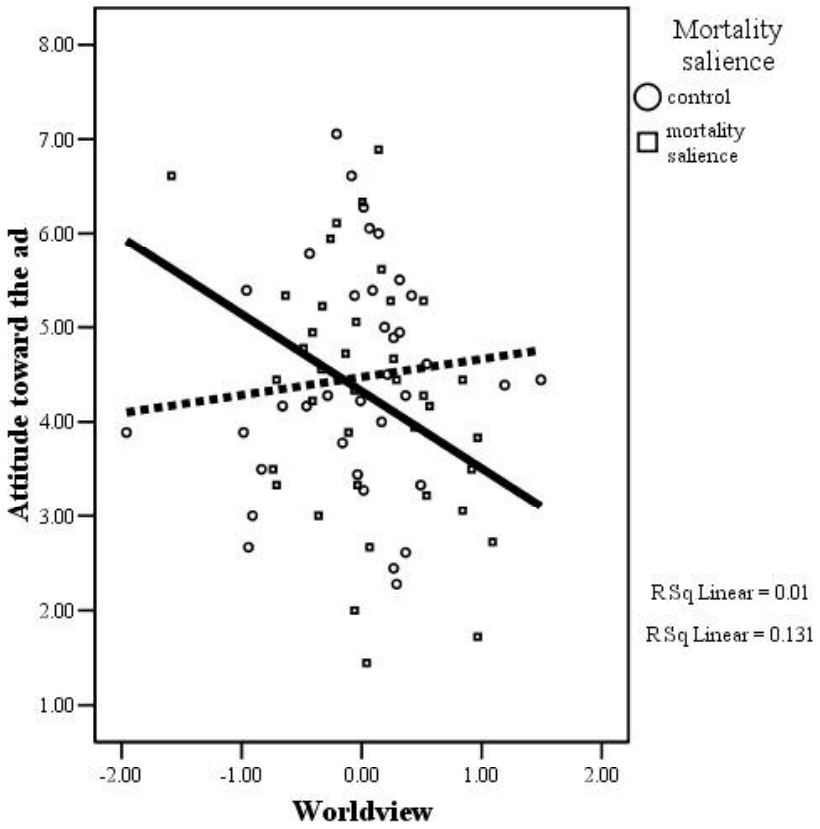
Note: Solid line = mortality salience; dotted line = control

Figure 27b. Interaction of worldview and mortality salience when cue is present for behavioral intentions.



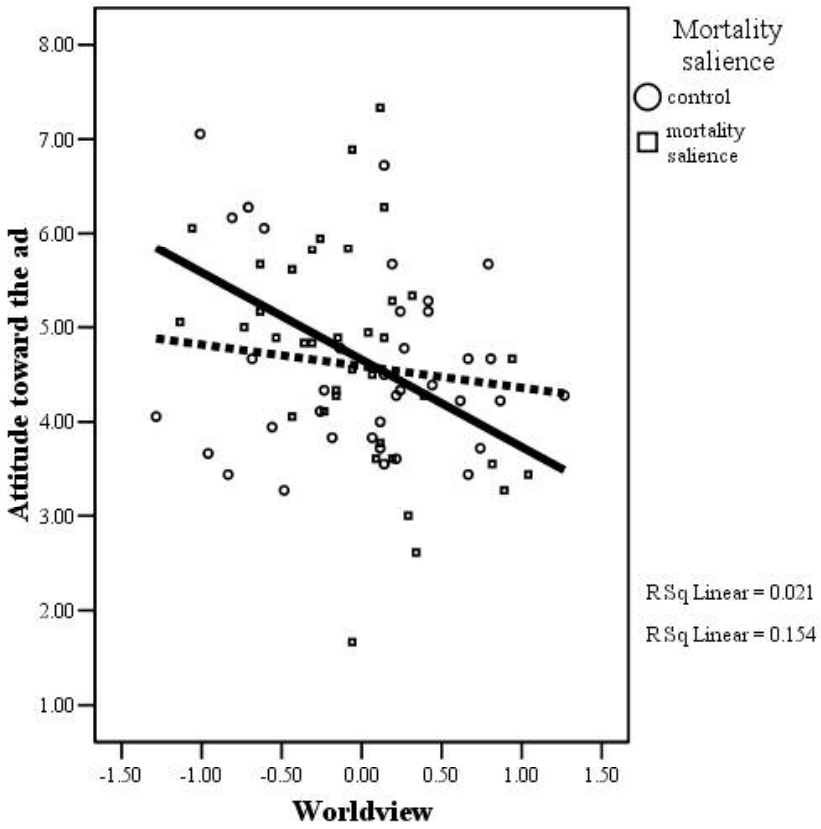
Note: Solid line = mortality salience; dotted line = control

Figure 28a. Interaction of worldview and mortality salience when arguments are weak for A_{ad}.



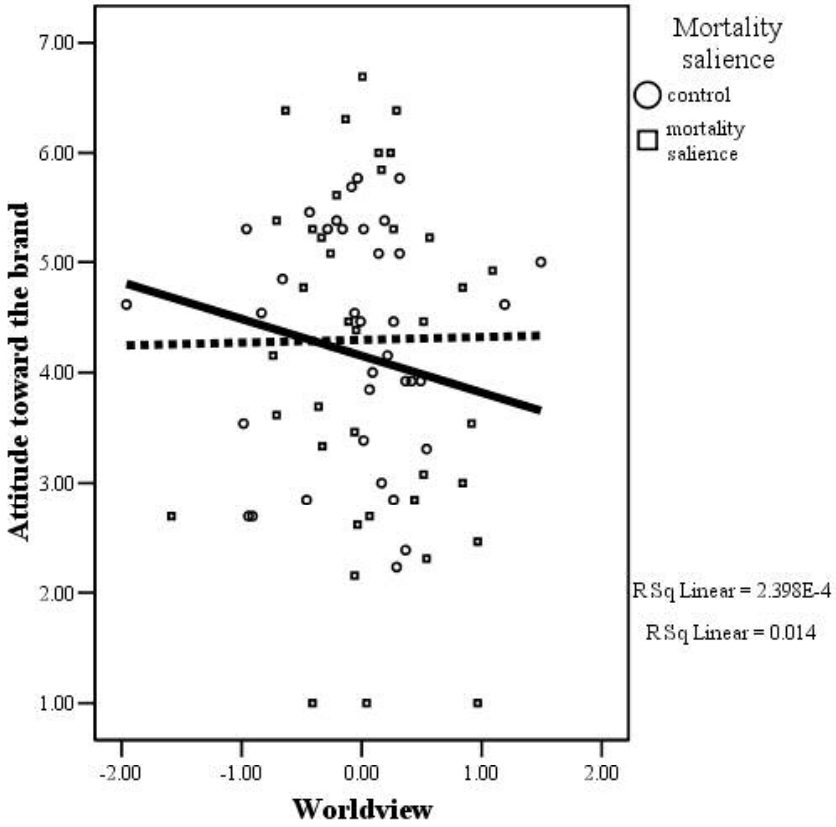
Note: Solid line = mortality salience; dotted line = control

Figure 28b. Interaction of worldview and mortality salience when arguments are strong for A_{ad}.



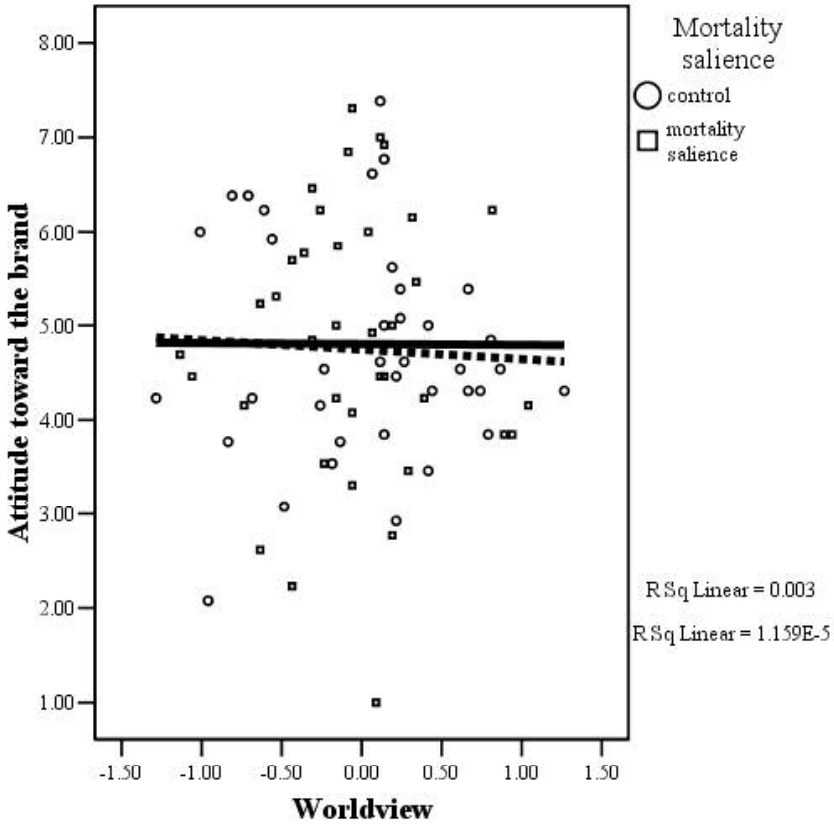
Note: Solid line = mortality salience; dotted line = control

Figure 29a. Interaction of worldview and mortality salience when arguments are weak for A_{brand}.



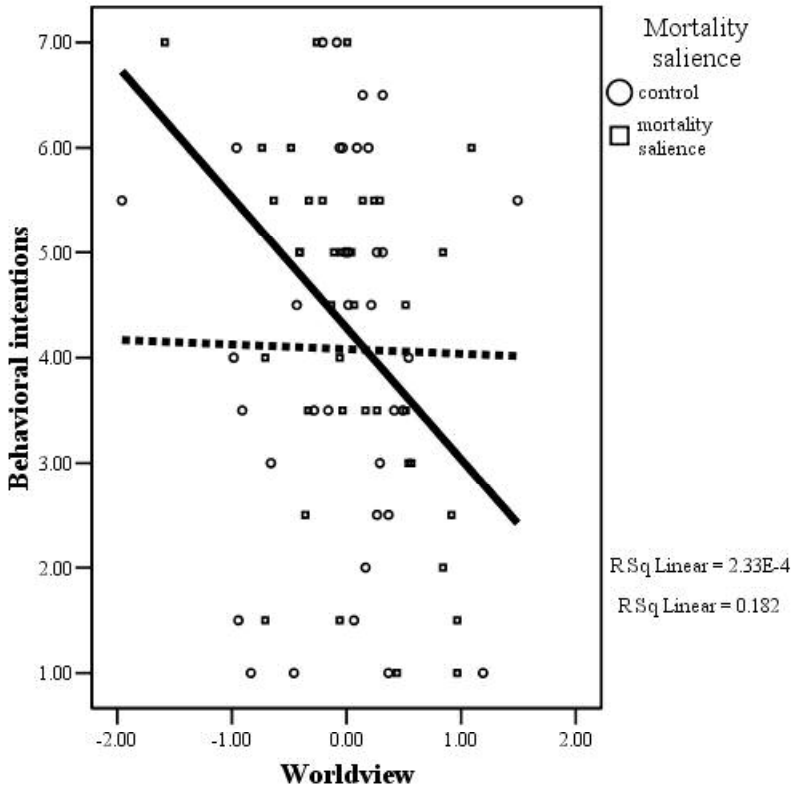
Note: Solid line = mortality salience; dotted line = control

Figure 29b. Interaction of worldview and mortality salience when arguments are strong for A_{brand}.



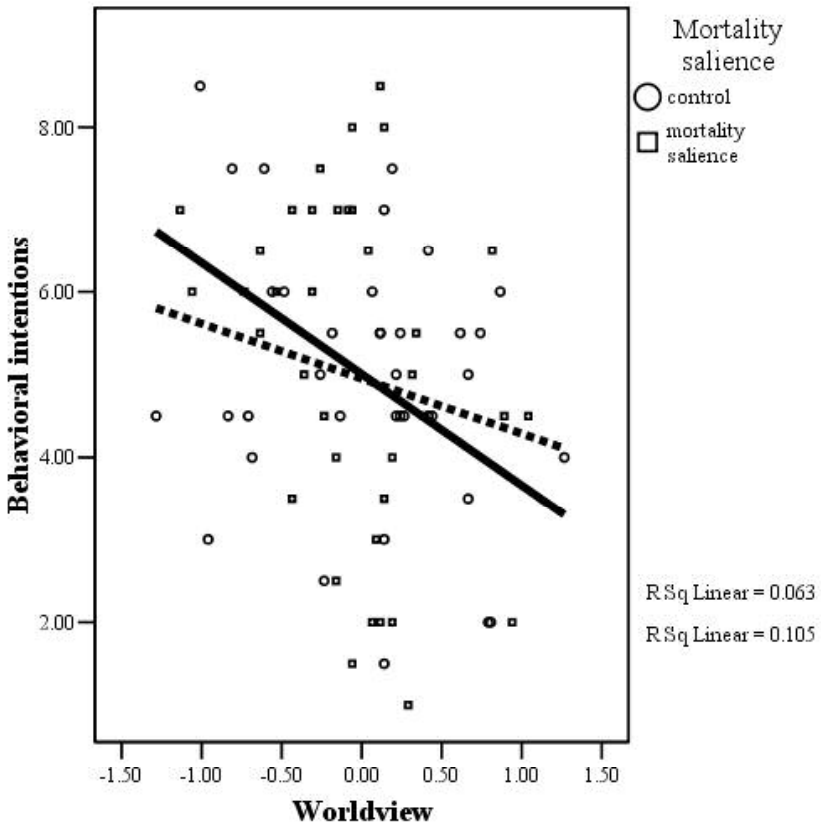
Note: Solid line = mortality salience; dotted line = control

Figure 30a. Interaction of worldview and mortality salience when arguments are weak for behavioral intentions.



Note: Solid line = mortality salience; dotted line = control

Figure 30b. Interaction of worldview and mortality salience when arguments are strong for behavioral intentions.



Note: Solid line = mortality salience; dotted line = control

Appendix C.

Materials

Advertisement Evaluation Study

Instructions

You are being asked to evaluate two magazine advertisements and record your impressions about each one.

It is important to be as honest as you can and go with your "first impression" or "gut reaction."

Please view the advertisement as you normally would. After you view each advertisement, you will be asked to evaluate it. Please record your answers in the answer booklet. Please evaluate the first advertisement **before proceeding to the second one**.

Remember:
please record your responses regarding the first ad before you view the second ad.

Please briefly describe the *emotions* that the thought of your own death arouses in you.

[CONTROL]
[Please briefly describe the *emotions* that the thought of watching television arouses in you.]

Jot down, as specifically as you can, what you think will happen to you as you *physically* die and once you are *physically* dead.

[CONTROL]
[Jot down, as specifically as you can, what you think happens to you *physically* as you watch television.]

Please continue to the next page.

*In this section, please rate your level of agreement with the following statements on a scale from 1 to 9, where "**1**" means you **strongly disagree** and "**9**" means you **strongly agree**. Notice that some of the questions are **opposite** the others, so please read each statement carefully, then circle the number that best expresses your feeling.*

	Strongly Disagree								Strongly Agree
1. I think that having clear rules and order at work is essential for success.	1	2	3	4	5	6	7	8	9
2. Even after I've made up my mind about something, I am always eager to consider a different opinion.	1	2	3	4	5	6	7	8	9
3. I don't like situations that are uncertain.	1	2	3	4	5	6	7	8	9
4. I dislike questions that are uncertain.	1	2	3	4	5	6	7	8	9
5. I like to have friends who are unpredictable.	1	2	3	4	5	6	7	8	9
6. I find that a well ordered life with regular hours suits my temperament.	1	2	3	4	5	6	7	8	9
7. When dining out, I like to go to places where I have been before so that I know what to expect.	1	2	3	4	5	6	7	8	9
8. I feel uncomfortable when I don't understand the reason why an event occurred in my life.	1	2	3	4	5	6	7	8	9
9. I feel irritated when one person disagrees with what everyone else in a group believes.	1	2	3	4	5	6	7	8	9
10. I hate to change my plans at the last minute.	1	2	3	4	5	6	7	8	9
11. I don't like to go into a situation without knowing what I can expect from it.	1	2	3	4	5	6	7	8	9
12. When I go shopping, I have difficulty deciding exactly what it is that I want.	1	2	3	4	5	6	7	8	9
13. When faced with a problem I usually see the one best solution very quickly.	1	2	3	4	5	6	7	8	9
14. When I am confused about an important issue, I feel very upset.	1	2	3	4	5	6	7	8	9
15. I tend to put off making important decisions until the last possible moment.	1	2	3	4	5	6	7	8	9
16. I usually make important decisions quickly and confidently.	1	2	3	4	5	6	7	8	9
17. I would describe myself as indecisive.	1	2	3	4	5	6	7	8	9
18. I think it is fun to change plans at the last moment.	1	2	3	4	5	6	7	8	9
19. I enjoy the uncertainty of going into a new situation without knowing what might happen.	1	2	3	4	5	6	7	8	9
20. My personal space is usually messy and disorganized.	1	2	3	4	5	6	7	8	9
21. In most social conflicts, I can easily see which side is right and which is wrong.	1	2	3	4	5	6	7	8	9
22. I tend to struggle with most decisions.	1	2	3	4	5	6	7	8	9
23. I believe that orderliness and organization are among the most important characteristics of good student.	1	2	3	4	5	6	7	8	9

	Strongly Disagree								Strongly Agree
24. When considering most conflict situations, I can usually see how both sides could be right.	1	2	3	4	5	6	7	8	9
25. I don't like to be with people who are capable of unexpected actions.	1	2	3	4	5	6	7	8	9
26. I prefer to socialize with familiar friends because I know what to expect from them.	1	2	3	4	5	6	7	8	9
27. I think that I would learn best in a class that lacks clearly stated objectives and requirements.	1	2	3	4	5	6	7	8	9
28. When thinking about a problem, I consider as many different opinions on the issue as possible.	1	2	3	4	5	6	7	8	9
29. I like to know what people are thinking all the time.	1	2	3	4	5	6	7	8	9
30. I dislike it when a person's statement could mean many different things.	1	2	3	4	5	6	7	8	9
31. It's annoying to listen to someone who cannot seem to make up his or her mind.	1	2	3	4	5	6	7	8	9
32. I find that establishing a consistent routine enables me to enjoy life more.	1	2	3	4	5	6	7	8	9
33. I enjoy having a clear and structured mode of life.	1	2	3	4	5	6	7	8	9
34. I prefer interacting with people whose opinions are very different from my own.	1	2	3	4	5	6	7	8	9
35. I like to have a place for everything and everything in its place.	1	2	3	4	5	6	7	8	9
36. I feel uncomfortable when someone's meaning or intention is unclear to me.	1	2	3	4	5	6	7	8	9
37. When trying to solve a problem I often see so many possible options that it's confusing.	1	2	3	4	5	6	7	8	9
38. I always see many possible solutions to problems I face.	1	2	3	4	5	6	7	8	9
39. I'd rather know bad news than stay in a state of uncertainty.	1	2	3	4	5	6	7	8	9
40. I do not usually consult many different opinions before forming my own view.	1	2	3	4	5	6	7	8	9
41. I dislike unpredictable situations.	1	2	3	4	5	6	7	8	9
42. I dislike the routine aspects of my schoolwork.	1	2	3	4	5	6	7	8	9

Please continue to the next page.

You will find a series of general statements listed below. Each represents a commonly held opinion, and there are no right or wrong answers. You will probably disagree with some items and agree with others. We are interested in the extent to which you agree or disagree with such matters of opinion.

*For this particular questionnaire, it is best if you **answer quickly** and go with your **first impression or "gut reaction**." Please indicate the extent to which you agree or disagree by circling the number corresponding to your feelings, where "**1**" means you **strongly disagree** and "**9**" means you **strongly agree**.*

	Strongly Disagree								Strongly Agree
1. Facts speak for themselves.	1	2	3	4	5	6	7	8	9
2. Our understanding of the natural, physical world is influenced by our social values.	1	2	3	4	5	6	7	8	9
3. Scientific facts are universal truths; they do not change over time.	1	2	3	4	5	6	7	8	9
4. Nothing is really good or bad, it always depends upon how we think about it.	1	2	3	4	5	6	7	8	9
5. What we see with our own eyes is influenced by our expectations.	1	2	3	4	5	6	7	8	9
6. Truth is relative. What is true at one point in time may not be true at another.	1	2	3	4	5	6	7	8	9
7. Scientific investigations are objective; they are not influenced by social values.	1	2	3	4	5	6	7	8	9
8. We never see the world as it really is. What we perceive depends on what we believe and want to see.	1	2	3	4	5	6	7	8	9
9. Our understanding of human behavior is influenced by our social values.	1	2	3	4	5	6	7	8	9
10. Nothing is really important by itself. A thing is important if we think it is.	1	2	3	4	5	6	7	8	9
11. Seeing is believing.	1	2	3	4	5	6	7	8	9
12. The more people know, the more they are bound to feel that they cannot be completely sure about anything.	1	2	3	4	5	6	7	8	9

Please continue to the next page

*Again, it is best if you **answer quickly** and go with your **first impression or "gut reaction."** We are interested in the extent to which you agree or disagree with these matters of opinion, where "**1**" means you **strongly disagree** and "**9**" means you **strongly agree**.*

	Strongly Disagree								Strongly Agree
1. Who has power is a central issue in understanding how society works.	1	2	3	4	5	6	7	8	9
2. It is not good for a person to refuse to go along with the rules of society.	1	2	3	4	5	6	7	8	9
3. Science has underestimated the extent to which genes affect human behavior.	1	2	3	4	5	6	7	8	9
4. Sometimes going against society's rules is necessary for social change to occur.	1	2	3	4	5	6	7	8	9
5. The way scientists choose to investigate problems is influenced by the values of their society.	1	2	3	4	5	6	7	8	9
6. If one works hard at solving a problem, one can usually find the answer.	1	2	3	4	5	6	7	8	9
7. If everyone learns what is important to them, the world will take care of itself.	1	2	3	4	5	6	7	8	9
8. Most sex differences have an evolutionary purpose.	1	2	3	4	5	6	7	8	9
9. People who achieve success usually deserve it.	1	2	3	4	5	6	7	8	9
10. The saying "You shall know the truth and the truth shall set you free" is still valid today.	1	2	3	4	5	6	7	8	9
11. The more technology we develop, the better our science will be.	1	2	3	4	5	6	7	8	9
12. Accidental solutions to problems are very rare.	1	2	3	4	5	6	7	8	9
13. At the present time, people are recognized for their achievements regardless of their race, sex, or social class.	1	2	3	4	5	6	7	8	9
14. People cannot be trained to be creative—they are either born that way or not.	1	2	3	4	5	6	7	8	9
15. People who demand social change are usually those who have been unsuccessful.	1	2	3	4	5	6	7	8	9
16. The facts of science change over time.	1	2	3	4	5	6	7	8	9
17. The United States is the most equal society in the world.	1	2	3	4	5	6	7	8	9
18. Once a scientific fact has been discovered, it remains part of that science from then on.	1	2	3	4	5	6	7	8	9
19. We communicate much more information to each other than we are aware of doing.	1	2	3	4	5	6	7	8	9
20. Personality characteristics account for the most differences in human behavior.	1	2	3	4	5	6	7	8	9
21. Important ideas are most likely to originate from prestigious institutions.	1	2	3	4	5	6	7	8	9
22. Effort can often make up for a lack of talent in an area.	1	2	3	4	5	6	7	8	9
23. It is more important to be liked than to be powerful.	1	2	3	4	5	6	7	8	9

	Strongly Disagree								Strongly Agree
24. Biological sex, sex role, and sexual preference are highly related to each other in normal people.	1	2	3	4	5	6	7	8	9
25. The mother-infant relationship is a key to understanding later adult development.	1	2	3	4	5	6	7	8	9
26. People who are part of minority groups should not have to worry about other people in these groups who are less successful than they are.	1	2	3	4	5	6	7	8	9
27. Unconscious motivations are very important for understanding human behavior.	1	2	3	4	5	6	7	8	9
28. Deviance is not a particular kind of behavior but a perception by others that behavior is socially unacceptable.	1	2	3	4	5	6	7	8	9
29. Society must protect itself from those who do not accept its rules.	1	2	3	4	5	6	7	8	9
30. Famous people's research is frequently mentioned by less well known others in order to lend prestige to their own findings.	1	2	3	4	5	6	7	8	9
31. Most people would cooperate with each other if only they understood that everyone would benefit by such behavior.	1	2	3	4	5	6	7	8	9
32. Scientific merit is determined by the excellence of the work done.	1	2	3	4	5	6	7	8	9
33. It is important to decrease the distance between the "real world" and the scientific laboratory.	1	2	3	4	5	6	7	8	9
34. A great deal can be learned about human behavior by studying animals.	1	2	3	4	5	6	7	8	9
35. Those who go against society's rules during one period of history are often found to be leaders of social change later on.	1	2	3	4	5	6	7	8	9
36. The acceptability of evidence is related to the importance of the person who discovers it.	1	2	3	4	5	6	7	8	9
37. It is better not to know too much about things that cannot be changed.	1	2	3	4	5	6	7	8	9
38. Biological differences limit the degree to which men and women can learn to be similar to each other.	1	2	3	4	5	6	7	8	9
39. People who have the least to lose in a relationship will be more likely to get their way in that relationship.	1	2	3	4	5	6	7	8	9
40. Most social problems are solved by a few very qualified individuals.	1	2	3	4	5	6	7	8	9

Thank you. This is the end of the section on background questions.

Please continue to the next study.

Advertisement Evaluation Study

Instructions

You are being asked to evaluate two magazine advertisements and record your impressions about each one.

It is important to be as honest as you can and go with your "first impression" or "gut reaction."

Please view the advertisement as you normally would. After you view each advertisement, you will be asked to evaluate it. Please record your answers in the answer booklet. Please evaluate the first advertisement **before proceeding to the second one**.

Remember:
please record your responses regarding the first ad before you view the second ad.

This section pertains to your perceptions of the advertisement you just viewed. Please record your evaluations based on the following scales. Notice that some of the scales are reversed, so please read both ends of the scale carefully before making your choice.

A. Please express your attitudes toward the *advertisement*.

Appealing	1	2	3	4	5	6	7	8	9	Unappealing
Informative	1	2	3	4	5	6	7	8	9	Uninformative
Unexciting	1	2	3	4	5	6	7	8	9	Exciting
Boring	1	2	3	4	5	6	7	8	9	Interesting
Good	1	2	3	4	5	6	7	8	9	Bad
Pleasant	1	2	3	4	5	6	7	8	9	Unpleasant
Dull	1	2	3	4	5	6	7	8	9	Dynamic
Clear	1	2	3	4	5	6	7	8	9	Confusing
Unattractive	1	2	3	4	5	6	7	8	9	Attractive
Favorable	1	2	3	4	5	6	7	8	9	Unfavorable
Likable	1	2	3	4	5	6	7	8	9	Dislikable
Ordinary	1	2	3	4	5	6	7	8	9	Sophisticated
Persuasive	1	2	3	4	5	6	7	8	9	Unpersuasive
Low Quality	1	2	3	4	5	6	7	8	9	High Quality
Negative	1	2	3	4	5	6	7	8	9	Positive
Agreeable	1	2	3	4	5	6	7	8	9	Disagreeable
Worthless	1	2	3	4	5	6	7	8	9	Valuable
Useful	1	2	3	4	5	6	7	8	9	Useless

B. Please express your attitudes toward the *brand*.

Appealing	1	2	3	4	5	6	7	8	9	Unappealing
Unexciting	1	2	3	4	5	6	7	8	9	Exciting
Good	1	2	3	4	5	6	7	8	9	Bad
Pleasant	1	2	3	4	5	6	7	8	9	Unpleasant
Dull	1	2	3	4	5	6	7	8	9	Dynamic
Unattractive	1	2	3	4	5	6	7	8	9	Attractive
Favorable	1	2	3	4	5	6	7	8	9	Unfavorable
Likable	1	2	3	4	5	6	7	8	9	Dislikable
Ordinary	1	2	3	4	5	6	7	8	9	Sophisticated
Low Quality	1	2	3	4	5	6	7	8	9	High Quality
Negative	1	2	3	4	5	6	7	8	9	Positive
Worthless	1	2	3	4	5	6	7	8	9	Valuable
Useful	1	2	3	4	5	6	7	8	9	Useless

C. Please express your attitudes toward the *product*.

	Not at all Likely								Very Likely
1. Rate the probability that you would purchase this product.	1	2	3	4	5	6	7	8	9
2. Rate the probability that you would try a free sample of this product.	1	2	3	4	5	6	7	8	9

D. Please rate the strength of the advertisement's arguments.

Strong	1	2	3	4	5	6	7	8	9	Weak
Persuasive	1	2	3	4	5	6	7	8	9	Unpersuasive
Unconvincing	1	2	3	4	5	6	7	8	9	Convincing
Good	1	2	3	4	5	6	7	8	9	Bad
Logical	1	2	3	4	5	6	7	8	9	Illogical

E. Please express your perceptions of the company's expertise.

	Strongly Disagree								Strongly Agree
1. The company has special expertise in this product area.	1	2	3	4	5	6	7	8	9
2. The company is an authoritative source of product information.	1	2	3	4	5	6	7	8	9
3. The company is an unreliable source of product information.	1	2	3	4	5	6	7	8	9
4. The company is knowledgeable in this product area.	1	2	3	4	5	6	7	8	9

*This section assesses the credibility of the advertisement you just viewed. Please rate your level of agreement with the following statements on a scale from 1 to 9, with "**1**" being "**strongly disagree**" and "**9**" being "**strongly agree**."*

	Strongly Disagree								Strongly Agree
1. I would trust information in the advertisement.	1	2	3	4	5	6	7	8	9
2. I believe the advertisement to be credible.	1	2	3	4	5	6	7	8	9
3. I found the information featured in the advertisement to be of high quality.	1	2	3	4	5	6	7	8	9
4. I found the information featured in the advertisement to be accurate.	1	2	3	4	5	6	7	8	9
5. I found the information featured in the advertisement to be reliable.	1	2	3	4	5	6	7	8	9
6. I found the information featured in the advertisement to be believable.	1	2	3	4	5	6	7	8	9

	Very Little								Very Much
1. How much attention did you pay to the ad content?	1	2	3	4	5	6	7	8	9
2. How familiar were you with the ad you just viewed?	1	2	3	4	5	6	7	8	9

Have you ever used this product before? _____ Yes _____ No

Basic Questionnaire

Please answer some brief background questions.
Your responses are completely confidential.

1. In what year were you born? _____

2. What is your major? _____

Please circle one

3. Gender: Female Male

4. Ethnicity: African-American Asian Caucasian
Hispanic/Latino Native American Other

5. Have you taken a course in process and effects of mass communication? No Yes

6. Have you taken a course in advertising copy writing? No Yes

7. Have you taken a course in design (e.g., promotion design, publication design)? No Yes

In your own words, please write what you believe to be the purpose of this study.

Please write any comments for the experimenter in the space below.

Please briefly describe the emotions that finding a winning lottery ticket for $1 million would arouse in you.

Jot down, as specifically as you can, what you think you would do if you won $1 million.

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