Activated Self Concept as a Mechanism Underlying Persuasive Message Effects

Dissertation

Presented in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in the Graduate School of The Ohio State University

By

Maria Leonora G. Comello, M.S.

Graduate Program in the School of Communication

The Ohio State University
2010

Dissertation Committee:

Michael D. Slater, Advisor

David R. Ewoldsen

Janice Raup-Krieger
Abstract

Recent theoretical work has posited that the self-system guides behavior via currently activated self-concepts. This proposition was studied in the context of persuasive health messages. Anti-marijuana TV ads produced by the Office of National Drug Control Policy were chosen as stimulus materials to shed light on the psychological mechanisms via which these ads may operate. The goal was to categorize the ads by theme, and then to test whether any effects of theme on behavioral willingness to use marijuana would be mediated by self view as a nonuser.

Study 1 served as the pretest for the main experiment. Participants (n=96) were assigned to view all ads (n=8) from one of two campaigns (My Anti-Drug or Above the Influence) that were represented in the stimulus pool. Participants were asked to 1) categorize ads thematically based on values supported by nonuse, 2) rate ads in terms of emotional tone and appeal to aid selection of ads that were reasonably equivalent on these dimensions, 3) rate the campaigns from which the ads were drawn, and 4) answer questions about marijuana risk. Two themes (autonomy and responsibility) with two exemplars were selected based on categorization data. Additional analyses showed that compared to the Above the Influence campaign, My Anti-Drug was associated with more negative affect and with greater judgments of marijuana risk, consistent with that campaign’s focus.
The ads yielded by Study 1 were embedded in commercial breaks of a game-show clip to create the stimulus materials for Study 2. Participants in Study 2 were assigned to see one of three clips that 1) contained embedded ads about non-use supporting autonomy, 2) contained embedded ads about non-use supporting responsibility to others, or 3) retained original commercials (control). Outcomes were reaction-time measures that assessed self view as nonuser; behavioral willingness to use marijuana; perceptions that marijuana is inconsistent with autonomy; and perceptions that marijuana is inconsistent with responsibility. It was hypothesized that exposure to conditions 1 and 2 would facilitate responses consistent with nonuse, relative to control. Results showed that exposure to condition 2 was associated with slowed reaction times to endorse views of self as nonuser and of marijuana inconsistency with responsibility, as well as with slowed reaction times to indicate unwillingness to use marijuana in a social situation, relative to control. A test of mediation of exposure effects on willingness showed that effects were carried through self view, but not through marijuana inconsistency with responsibility. Thus, although theme effects vs. control were not in the expected direction, the mechanism of self view activation underlying theme effects was supported.
Dedication

This work is dedicated to my husband, Joe,
and to our children, Jacob and Lucy.
Professional Acknowledgments

I am grateful to Mike Slater, Janice Raup-Krieger, and Dave Ewoldsen for their guidance on this dissertation and for encouraging my growth as a scholar. Thanks are also due to the School of Communication IT staff, especially Robb Hagen and Joe Szymczak, for their ready assistance. Sheena Williams assisted in reviewing PSAs and pretesting instruments for Study 1. The Office of National Drug Control Policy deserves acknowledgment for providing electronic copies of ads that facilitated stimulus selection.

Personal Acknowledgments

First and foremost, I am deeply grateful to my husband Joe and to our children, Jacob and Lucy, for their stalwart support and unflagging good cheer over the last four years. My parents, Reuben and Celina Guerrero, also deserve my thanks (I hope they will be glad to know that I am finally in a field that rewards constant questioning). I am grateful for the camaraderie of my fellow grad students, especially my officemates Parul Jain and Adrienne Chung. I have learned so much from School of Communication faculty; in addition to my committee, I wish to thank Brenda Dervin, Lance Holbert, and Gerald Kosicki. Kathleen Kelly at Colorado State University provided me with a wealth of experience on her research projects that sealed my desire to enroll in a doctoral program. Finally, thank you again, Mike, for your support and sage counsel over the years. It is my goal to help future students recognize a love of inquiry and discovery as part of their identity, as you have done for me.
Vita

Education

1989   BA Psychology, University of Pennsylvania

2000   MS Technical Communication, Colorado State University

2006-present  Graduate Associate, School of Communication  
The Ohio State University

Awards


Doris Gildea Morgan Scholarship Award: Senior graduate student research award given by School of Communication, The Ohio State University, May 8, 2009.


Award for Minority Excellence in Science, Department of Psychology, University of Pennsylvania, 1989.
Refereed Publications


Fields of Study

Major field: Communication

Special interests: Health communication
Strategic communication
Identity
Public relations

viii
Table of Contents

Abstract ........................................................................................................................................ ii
Dedication ................................................................................................................................ iv
Acknowledgments ...................................................................................................................... v
Vita ........................................................................................................................................ vi
List of Tables ............................................................................................................................ xi
List of Figures ........................................................................................................................... xii
General Literature Review .................................................................................................... 1
Study 1: Ad-categorization pretest & campaign effects experiment ............................... 18
  Background ............................................................................................................................. 18
  Method .................................................................................................................................. 21
  Results .................................................................................................................................. 27
  Discussion ............................................................................................................................... 33
Study 2 ...................................................................................................................................... 36
  Background ............................................................................................................................. 36
  Method .................................................................................................................................. 37
  Results .................................................................................................................................. 47
  Discussion ............................................................................................................................... 59
General discussion ................................................................................................................... 67
References..............................................................................................................74

Appendix: Tables and Sample Output ..................................................................83
List of Tables and Sample Output

Table 1: Inventory and Descriptions of ONDCP Ads (Study 1) .........................84
Table 2: Evaluations of ONDCP Ads (Study 1) ..................................................86
Table 3: Raw Mean Reaction Times by Condition (Study 2)...............................88
Sample Output from MODPROBE Analysis Using Johnson-Neyman Method ...89
List of Figures

Figure 1: Conceptual Model of Multiple Mediation Tested (Study 1) .................31
Figure 2: Effect of Condition by Valence on Willingness (Study 2) ....................51
Figure 3: Effect of Condition by Valence on Willingness, with Error Bars ..........52
Figure 4: Conceptual Model of Multiple Mediation Tested (Study 2) .................54
Neither threats nor pleadings can move a man unless they touch some one of his potential or actual selves. (William James, 1890/1981, p. 297)

Identity can be conceptualized in innumerable ways – as a transcendent unifying construct or as infinitely variable, as central to human experience or as nonexistent, as open or closed to empirical verification, and as everything else in between. This dissertation aims to take but one perspective on the self – as populated by multiple self-concepts which can be activated by persuasive efforts (as suggested by William James in the quote above and by contemporary theorists) – and to study relationships suggested by that conceptualization in a health context.

This approach to identity has potential to make distinctive contributions to communication science in general and health communication in particular. First, the studies focus on mechanism rather than on direct message effects on behavior-relevant outcomes. Increasingly, the focus in communication science has been to uncover mechanisms (i.e., mediation of communication effects via psychological variables), because such an approach makes explicit and tests the psychological processes that are only assumed or are not fully explored in many studies (O’Keefe, 2003; Tao & Bucy,
Such an approach is more informative for theory building and also provides more usable information for message planners. From a health communication perspective, Slater (2006) observes that a focus on mechanism is essential so that campaign effects on behavior can be traced back to psychological antecedents, which would enable future efforts to replicate results (or if a campaign has failed, to identify probable causes and to make improvements on strategy). This work is responsive to these calls by conceptualizing identity accessibility as a mediator of message effects on behavior-relevant outcomes. Furthermore, the studies reported here shed light on the contested effectiveness of the most expensive national drug prevention media intervention to date, the National Youth Anti-Drug Media Campaign.

The choice of mediator – identity accessibility – is one that has been underexplored in communication research. Whereas there is abundant research in communication on representations of group identity in the media in content analytic work and on outcomes of such representations (see summary by Harwood & Roy, 2005), and on level of group identification as a moderator of communication effects (e.g., Berger & Rand, 2008; Morton & Duck, 2000; Reid & Hogg, 2005), the notion of self-concepts as targets for activation has not been fully examined. Recently, however, theoretical and empirical work in psychology has drawn attention to self-concept activation (e.g., Active-Self Account; Wheeler, DeMarree, & Petty, 2007), and it has been argued that such a framework could be fruitfully explored in communication research (Comello, 2009a).
a health context in particular, where behaviors are usually mired in conflicting motivations (“I consider myself a very health oriented person, but I do enjoy life and I really want to eat that piece of cake”), increasing the accessibility of the advocated self-concept may be the only reasonable strategy, given that the advocated self-concept is already present but is in a state of competition with other self-concepts.

Although self-concept activation as a mechanism seems promising enough, the conceptualization is only as good as the operational means by which it can be studied empirically. This dissertation utilizes non-deliberative reaction-time measures as tools to assess self-concept accessibility and other identity-related mechanisms. These measures are adapted from psychological measures of identity that depend on reaction-times to categorize an object as “me” or “not me” (Markus, 1977), but whereas that approach was originally designed to assess the extent to which a person was schematic or aschematic with respect a personality trait (e.g., autonomy), they are used in this study as outcomes of message effects.

Moreover, just as this measure is a way to get at the association of the self with a particular attribute or desirable behavior, it can also be used to assess the association of an attribute with the advocated behavior, thus revealing whether a message strategy that is based on characterizing an advocated behavior as consistent with a desirable attribute or goal has been successful. Further, the openness to risk that is posited to be at the root of risky behaviors among youth (behavioral willingness; Gibbons, Gerrard, & Lane,
2003) is also assessed in this study by non-deliberative reaction time measures (vs. the deliberative measures that have traditionally been used) to decide to engage or not in a risky behavior in an imagined scenario. All of these measures have potential to be used by both researchers and practitioners alike in the evaluation of strategic messages.

Background

The following sections summarize the literature on key concepts and issues in this study: identity, construct accessibility, behavioral willingness, and the health context of mass media drug prevention campaigns.

Identity. A comprehensive review of the many conceptualizations of identity is beyond the scope of this dissertation. Instead, the focus here will be on identity accessibility, with credit given to William James for being among the first to introduce the notion to the social sciences. According to James, the self is divided into empirical and non-empirical components, and within the empirical component, there are multiple and sometimes conflicting selves (1890). Further, he distinguished between selves that are “immediate and actual” and “remote and potential” (p. 300). He argued that these selves possess unique sets of motivations and goals, such that persuasive attempts, in order to be effective, must activate the appropriate self (as articulated by the quote “Neither threats nor pleadings can move a man unless they touch some one of his potential or actual selves”; p. 297). James also proposed that in addition to differing in
terms of level of activation, selves could differ in terms of value, with certain selves capable of preempting other selves when there is competition for scarce resources.

The concept of multiple selves has been explored and extended in psychology research, most notably in the construct of “possible selves” explicated by Markus and colleagues, who give credit to James for originating the idea. Markus and Nurius (1986) conceptualized possible selves as the domain of self-concept that is concerned with how people think of themselves, their potential, and their future. The domain is occupied by selves that are both desired and feared, selves that reflect some current capabilities and attributes but that also reflect the potential for change over time. These selves can be viewed as “cognitive bridges between the present and the future, specifying how individuals may change from how they are now to what they will become” (Markus & Nurius, 1986, p. 961). Similarly, Higgins (1987), also citing the influence of James, proposed that people have actual, ideal, and ought selves, and that discrepancies between those views can predict affective and other states (self-discrepancy theory).

One reason possible selves are thought to be so influential in effecting change is that they provide the self-relevant form of an idea, changing it from the vague and abstract to the personal and concrete (Markus & Nurius, 1986). For example, the self-regulatory function of possible selves in achieving desired goals has been demonstrated in the domain of academic achievement, with improved academic outcomes likely only
when possible selves were present that helped students articulate goals (Oyserman, Bybee, Terry, & Hart-Johnson, 2004).

Although these lines of research have elaborated on the notion of possible selves in ways that are useful to social science, the theories do not directly address the context-dependence of the self concept. More central to the aims of this dissertation, the theories do not address the potential sensitivity of the self to the “threats or pleadings” of persuasive messages and other communication experiences. However, a contemporary theory of self that draws inspiration from James and that lends itself most readily to the study of media effects is the Active-Self Account of Prime-to-Behavior Effects (Wheeler et al., 2007).

The Active-Self Account posits that the self-system guides behavior. The features of the self that guide behavior are those that are currently in the active self-concept, which can shift rapidly in response to external inputs such as primed constructs. The authors propose that the activation of stereotypes, traits, and related constructs can influence behaviors by temporarily affecting active self-representations in ways that are either consistent or inconsistent with the primed constructs (Wheeler et al., 2007, p. 235). This sets the stage for a potential role for communication – as a source of external stimuli for activating particular selves. In a mediated communication context, exposure to messages or media content could temporarily increase the accessibility of a particular self-view, which could then influence behavior. A similar process might take place in
interpersonal communication contexts, with the presence of different conversation partners eliciting different selves. The Active Self Account differs from other frameworks that could be used for studying identity in terms of its emphasis on relative accessibility of a self view among a field of multiple and even conflicting selves.

If exposure to media or to any communication instance can serve as the source of construct activation, then the model that emerges is one of mediation of communication effects via a psychological process, in accordance with the model proposed by Tao and Bucy (2007) and O’Keefe (2003). Curiously, though, empirical tests of the model in psychology have not pursued mediation for reasons of parsimony, inability to rule out third variables, and other reasons (see discussion of this issue by Wheeler, DeMarree, & Petty, 2008, p. 1044-1055). This appears to be an opportunity for communication scholars to explore this mechanism.

Preliminary work in a print ad context has found tentative support for this mechanism: Comello and Slater (2009) showed that prevention messages increased the accessibility of a nonuser self view and lowered behavioral willingness as predicted, and post-hoc analysis showed significant indirect effects on behavioral willingness through nonuser self view. It should be noted that another variable was tested simultaneously as a competing mediator (accessibility of the view that marijuana is inconsistent with autonomy), but the indirect path through this variable was non-significant. The finding
lends weight to the argument that identity accessibility has considerable explanatory value as a mechanism and that it therefore deserves further study.

This dissertation will build on this finding by formally testing mediation. Within an experimental context of drug prevention message vs. control, the prime-to-behavior mechanism described by the Active Self Account can be broken down into the following steps:

H1: Exposure to prevention ads (theme vs. control) will result in greater accessibility of a) nonuser self view and b) lower behavioral willingness, relative to control.

H2: Nonuser self view will predict behavioral willingness (controlling for theme effects), with more accessible nonuser self view associated with more unwillingness.

H3: There will be significant indirect effects of exposure on willingness via nonuser self view.

*Construct accessibility.* Although other large-scale prevention campaigns have been studied in terms of psychological effects (e.g., Evans et al., 2005; Stephenson, 2003; Stephenson & Palmgreen, 2001), one issue that remains largely unexplored is the non-deliberative processing of messages, which may occur when there is little motivation or opportunity to carefully consider the consequences of a behavior. In these situations, automatically activated attitudes can guide behavior without an individual’s active
consideration of the situation or even awareness that an attitude has been activated (Fazio, 2001; Fazio & Towles-Schwen, 1999). This may well be the case for automatically activated constructs among youth exposed to a health campaign in a school environment.

The activation of attitudes and other constructs by non-deliberative processing is reflected in greater accessibility of the construct. Once a construct is made accessible, accessibility may then influence behavior in a number of ways. Accessibility moderates the link between a construct and behavior relevant to that construct, with greater accessibility associated with greater correspondence between construct and behavior (Fazio, Powell, & Williams, 1989). Further, accessibility of beliefs about an object influences formation of attitudes about the object (Roskos-Ewoldsen & Fazio, 1997). Given these findings, it is reasonable to suppose that self-concept accessibility may also have effects on future actions well beyond the immediate response to a prime.

In addition to self-concept accessibility, the present study will examine the accessibility of associations between non-use and key values. Just as the self can be defined in terms of multiple and even conflicting attributes, so too can other constructs such as marijuana use be variably defined. For example, if marijuana use is framed as a countercultural activity, then it might be viewed as a sign of autonomy, but framed as a crowd-following activity, marijuana use may seem rather the opposite. Thus, the present study will examine not only accessibility of self-attribute associations but also of the
associations between use and key values. Previous work has shown that exposure to prevention ads was associated with weaker links between marijuana use and autonomy (Comello & Slater, accepted). Thus, the present study hypothesizes:

H4: Exposure to prevention ads (theme vs. control) will result in greater accessibility of a view that substance use is inconsistent with target values.

Operationally, how should researchers examine the impacts of non-deliberative processing? One method is through the use of measures that do not rely on conscious self-assessment. Although there are many such measures, what they have in common “is that they all seek to provide an estimate of the construct of interest without having to directly ask the participant for a verbal report” (Fazio & Olson, 2003, p. 300). The measures that were used in this study (and that have been used in preliminary work; Comello & Slater, accepted; Comello & Slater, 2009; Comello, 2009b) are non-deliberative in that the primary indicator of interest is quickness to respond to a yes/no question. The manifest content involves asking participants to endorse category-item linkages; for example, participants are asked to indicate whether or not certain attributes apply to the self by answering yes or no. Thus, the topic and the request for a yes/no response are explicit, but what the question does not ask explicitly is the degree to which participants endorse the category-item linkage. This is precisely the dimension that is captured by quickness of response and that serves as an indicator of the accessibility of the construct in memory.
A primary benefit of this measurement approach is that it may allow assessment of constructs despite the pressure some participants may feel to provide socially desirable answers. This is a nontrivial issue when assessing outcomes related to risky or illegal behaviors. To illustrate the advantage, consider the types of responses that would be elicited by deliberative and non-deliberative questions about identification as a user of substances. Let us assume that the deliberative item asked for extent of agreement that one was a user of substances, whereas the non-deliberative item asked for a quick yes/no endorsement of whether or not one was a user.

A person who does not ever use substances would probably indicate strong disagreement on the deliberative measure and would answer “no” quickly on the non-deliberative measure. A person who uses or is considering use, however, may not want to reveal an identity as a user if they feel pressure to provide a socially desirable response. If this is the case, such a person might indicate strong disagreement on the deliberative measure and answer “no” on the non-deliberative measure, just as a non-user would. However, the quickness of the “no” response is likely to be different. Due to the extra cognitive effort required to edit self-report, the user may have a slower reaction time to respond “no” compared to the non-user. This account is consistent with research that shows that social desirability operates as an editing process, in which participants access information and then evaluate it before responding (Holtgraves, 2004).
Behavioral willingness. The outcome most proximal to behavior that we measure in this study is behavioral willingness, which has been described as an openness to engage in risky behaviors that is related to but different from intention (Gibbons, Gerrard, Blanton, & Russell, 1998; Gibbons et al., 2003). Whereas intention is a product of deliberative thought, willingness can be characterized as reactivity to behavioral cues that may be present in risk-conducive situations. Such a construct makes intuitive sense, because it is easy to imagine that most respondents would report intentions to avoid risky behaviors but may nevertheless be willing to engage in the behaviors if they found themselves in an environment that made the behavior attractive, easy, and expected. Prior work by Gibbons and colleagues (1998) demonstrates that while willingness is correlated with behavior, willingness predicts behavior independent of intention.

The conceptualization of behavioral willingness as a non-deliberative vs. deliberative pathway to behavior would imply an operationalization using non-deliberative measures. However, the original measures of willingness are deliberative in that participants are asked to estimate the probability of engaging in acts at varying levels of risk. Because such an operationalization seemed at odds with the conceptualization of willingness, a non-deliberative measure of behavioral willingness was recently introduced in the context of evaluating ads from a prevention campaign for impact on marijuana related risk behaviors (Comello & Slater, accepted). The measure took the form of a speeded categorization task, similar to measures used for accessibility as
described above. As with those measures, it was expected that the reaction-time behavioral willingness measure would provide a way to assess willingness that would avoid the ceiling or floor effects of socially desirable responding that might be observed using a deliberative measure.

The reaction-time measure proved sensitive to the effects of condition, with lower willingness to use marijuana after exposure to campaign vs. comparison and control ads. In the same study, a deliberative measure of intention was not sensitive to the effect of condition, demonstrating greater sensitivity of the non-deliberative measure of willingness. Further, work by Goodall (2009) showed the effects of alcohol advertisements on a non-deliberative measure of willingness, but not on a traditional deliberative measure of alcohol attitude. Taken together, the results from the studies show the importance of assessing behavioral willingness in substance prevention contexts, and the potential of non-deliberative measures to show greater sensitivity (vs. deliberative measures) to the effects of condition.

Health context: The National Youth Anti-Drug Media Campaign. The stimuli for this study will be drawn from the set of video public service ads produced by the Office of National Drug Control Policy (ONDCP) for the National Youth Anti-Drug Media Campaign between 2002 and 2009. The national campaign received substantial funding, expert guidance, and industry support. Further, all the ads were submitted to a quantitative copy-test system that tested individual ads for ability to move targeted
beliefs, relative to a control; only the ads that were successful were allowed to air (Foley & Pechmann, 2004). Despite these efforts, a careful longitudinal evaluation of the campaign (that covered the period from 1999 to 2004) concluded that the campaign “was unlikely to have had favorable effects on youths and may have had delayed unfavorable effects” (Hornik, Jacobsohn, Orwin, Piesse, & Kalton, 2008, p. 2229).

As a consequence of these findings, the campaign received a major overhaul in 2005. Whereas the ads produced during the evaluation period (under the brand My Anti-Drug) tended to focus on negative consequences of marijuana use, the message platform of subsequent ads focused on positive messages and carried the brand Above the Influence. According to an evaluation of the more recent effort (Slater et al., 2010), self-reported exposure to the campaign predicted a reduced marijuana uptake trajectory as well as reduced use at post-test. Combining these two sets of ads into a pool of potential stimuli for experimentation offers variability in theme and campaign but at the same time consistently high production quality, given the involvement of national advertising firms in the creation of ads. Further, the finer grained measures used here (i.e., non-deliberative) and the focus on identity have potential to shed more light on the psychological impact of the ads compared to the target-belief information yielded by the copy-test approaches that have been reported to date (Foley & Pechmann, 2004).

---

1 The campaign name was modified slightly in each ad. The basic form was ________: (My/Your/The) Anti-Drug. For simplicity, the campaign will be referred to in this work as My Anti-Drug.
It should be noted that one of the possibilities suggested for the failure of the national campaign is that youth may have perceived a “meta-message” that substance use was widespread (Hornik et al., 2008), on the basis of deducing that only a major problem would require extensive prevention efforts. Although this possibility deserves further consideration, it does not undermine the importance of discovering which of the message strategies may be more effective in an experimental setting and would have a greater chance, relative to others, if included in a well implemented campaign at a future time.

For the purposes of studying relative effectiveness of message strategies, a number of approaches would be possible. One would be to accept the ONDCP-defined categorization of ads in terms of campaign theme and purportedly positive or negative messaging. However, these distinctions are not always clear-cut; for instance, some Above the Influence ads feature negative social consequences, and some My Anti-Drug ads are positive and aspirational. Thus, relying on imposed categories may not be the best approach.

The approach taken here will be to categorize the ads based on values supported by nonuse. Values have been defined as desirable goals, varying in importance, that serve as guiding principles in people’s lives; further, they are socially approved verbal representations of basic motivations (Schwartz, 1992, cited from Sagiv & Schwartz, 2000). An assumption underlying persuasive messages is that they promise satisfaction of basic motivations as a result of message compliance; therefore, the rationale for using
values as a framework for categorizing drug-prevention messages is that the effectiveness of ads may depend at least in part on the effectiveness of the ads in positioning the advocated behavior (i.e., nonuse) as supporting these basic motivations. Although a full review of the values literature is beyond the scope of this work, the present study employs a values framework as an alternative to the atheoretical approaches to thematic categorization that have been used in some studies.

To the extent that all values are considered important, and to the extent that ads generally frame advocated behaviors in terms of goals that are likely to be appealing to the audience, it is hypothesized that the ad themes will have effects (vs. control) that are consistent with nonuse, as has been already proposed. But because values also vary in importance, value importance may serve as an individual-difference variable that moderates the effects of theme.

RQ1: Which theme will be more effective in a) increasing accessibility of nonuser self view, b) increasing accessibility of view that marijuana use is inconsistent with target values, and c) lowering behavioral willingness to use marijuana?

RQ2: Will value importance moderate the effects of theme?

In summary, the literature points to opportunities to shed light on mixed findings from a national campaign on the practical level, and to demonstrate the self-activation mechanisms underlying value-based theme effects on the theoretical level. The
dissertation addresses these opportunities by conducting pretesting of national campaign ads to aid selection of appropriate exemplars of themes, and an experiment to test the effectiveness of message themes on the outcomes of self view as a nonuser, marijuana inconsistency with target values, and behavioral willingness to use marijuana.
Study 1: Ad-categorization pretest & campaign effects experiment

As groundwork for the main experiment testing self-activation, it was first necessary to select ads from the pool of ONDCP ads for inclusion as category exemplars in the main study. Study 1 was therefore conducted with the primary goal of selecting ads such that each value-based theme serving as a level in the main experiment would be represented by ads that were consistent with that theme and no other, and that were reasonably equivalent in terms of other ad attributes.

Although stimuli selection was the main purpose, there was also opportunity to conduct a campaign effects experiment, given that participants would already be viewing and evaluating ads branded with one campaign or another. Thus, Study 1 also involved a campaign effectiveness study, in which the objective was to compare ads from the current campaign (Above the Influence, launched in 2005) with those from the earlier campaign (My Anti-Drug, which ran from 2002 to 2005) in terms of effects on attitudes toward the campaign, risk perceptions of marijuana, and other key outcomes.

It should first be clarified that the present study includes only video PSAs and not print or other materials. Although ONDCP produces both print and video materials, the greater population of video PSAs had potential to yield a greater number of usable PSAs than would the much smaller selection of print PSAs. Further, the video PSAs provided some assurance in ability to sustain viewer engagement (relative to print) for the time of
exposure. Video PSAs are equal in length and are designed to engage the viewer for that length of time; in contrast, variability in text length of print ads could not be overcome simply by exposing participants to ads for an equal length of time, because a print ad with few words would have little else to sustain viewer interest. Finally, the video ads serve as the central component to ONDCP’s campaigns while print ads have just a supporting role; therefore, a study focusing on the video component would have more practical value.

Studies of the effectiveness of the ONDCP’s efforts have yielded mixed results at best. As already noted, an evaluation of the campaign showed no or adverse effects (Hornik et al., 2008). A review (Ginsburg & Czyzewska, 2005) of evaluations conducted at earlier stages of the campaign revealed that of 120 statistical tests reported, only 17 analyses achieved statistical significance, and none were in the direction of salutary campaign effects. However, other field evaluations have shown desirable effects among high-sensation seeking youth (Palmgreen, Lorch, Stephenson, Hoyle, & Donohew, 2007). Laboratory studies have found evidence of boomerang effects (such as more negative evaluations of ads containing marijuana scenes; Kang, Cappella, & Fishbein, 2009) that have been offered as explanations for why the ads may not have performed as expected in the field.

The formal field evaluations to date, however, cover only the period during which My Anti-Drug ads aired. In part because of unfavorable evaluation results, the campaign
was submitted to a major restructuring which shifted emphasis from negative consequences of marijuana use to positive messages about remaining true to oneself by avoiding marijuana use. There has since been no formal evaluation of the effectiveness of this new strategy; however, in the context of evaluating a prevention campaign in a randomized community trial, Slater and colleagues (2010) have observed that self-reported exposure to the ONDCP campaign predicted a reduced marijuana uptake trajectory as well as reduced use at post-test.

The present study would be the first to my knowledge to pit ads from the campaigns in an experimental setting. Two key outcomes include attitude toward brand and attitude toward product category, which in the context of this experiment correspond (respectively) to attitudes toward the campaign (the “brand” of non-use portrayed in ads through slogans, theme, etc.) and attitudes toward marijuana use or non-use. Previous work has shown that both attitude toward brand (Martin & Stewart, 2001; Martin, Stewart, & Matta, 2005) and attitude toward the product category (Kelly, Slater, & Karan, 2002) are important antecedents of purchase intentions and behavior.

Moreover, attitudes toward marijuana use encompass beliefs about the negative consequences of behavior, which leading models of behavior influence such as Theory of Reasoned Action (Ajzen & Fishbein, 1980) and the Health Belief Model (Becker, 1974) indicate is a key determinant of behavior. Although the ads from the My Anti-Drug campaign were designed and extensively copy-tested to ensure that they increased
perceptions of marijuana-use risk (Foley & Pechmann, 2004), similar testing on Above
the Influence ads has not been reported.

Research questions addressed in Study 1 can be organized in terms of the dual
aims. With respect to the pretest, the primary question is which ads will be
unambiguously categorized as representations of value-based themes. With respect to the
campaign effects experiment, the question is whether My Anti-Drug and Above the
Influence campaigns will differ in terms of participant ratings of overall attitude toward
ad, emotional tone, attitude toward brand, and attitude toward product category.

Method

Participants

The sample was composed of 96 undergraduate communication students. The
mean age was 21.4 (SD = 2.2). Twenty-nine percent were male, and 71% were female.
The breakdown by ethnicity was White (76%), Black (9%), Hispanic (8%), Asian (2%),
and other (5%).

Design

For the purposes of obtaining individual ad evaluations and attitudes toward the
campaign overall, participants were assigned to one of two groups – My Anti-Drug
(MAD) or Above the Influence (ATI) – and were exposed to all of the ads from that
campaign that had been deemed age appropriate (see section on stimuli selection). There
were 48 participants in each group, and eight ads in each campaign.
For the purposes of testing campaign effects on attitudes toward marijuana use, participants were assigned to one of three levels within the campaign variable: 1) exposure to MAD ads prior to completing attitude toward marijuana measures, 2) exposure to ATI ads prior to completing these measures, and 3) no exposure to ads prior to completing these measures. The responses from participants in the third group thus served as a baseline against which responses from the other two groups could be compared. There were 32 participants in each condition.

Procedurally, the multiple goals of this study were combined by assigning participants in the third condition to view either the MAD or ATI set of ads after they had completed the attitudes toward marijuana measures. Thus, all participants evaluated all the ads from one of the two campaigns and completed individual ad and overall campaign evaluation measures. However, a third of participants completed the attitude toward marijuana use measures prior to viewing the ads.

*Stimuli Selection*

Prior to the pretest, a review was conducted by the author and a research assistant of the population of ONDCP anti-marijuana youth-aimed ads from 2002 through 2007. These ads (n = 43) were received as an electronic video collection from ONDCP; in addition, several anti-marijuana ads were also reviewed that had been produced since 2007 and that were posted on the Above the Influence Web site (http://www.abovetheinfluence.com/the-ads/).
The review was intended to cull out ads that would obviously not be suited for the present study. Ads were first excluded if they contained animated characters (n = 7) or if they contained no human characters at all (n = 1). Next, ads were reviewed for age appropriateness to a college audience. Because the ONDCP ads were developed for audiences younger than college age, there was a concern that some of the ads would too strongly evoke a high-school or middle-school environment and would consequently be discounted by participants as irrelevant.

To identify potentially problematic ads, the author and a research assistant viewed all of the ads and flagged those that contained 1) scenes of high school or middle school (e.g., lockers in hallway, principal’s office, uniforms, etc.), 2) statements from characters that college is still far in the future, 3) clear evidence that main characters are living at home on a permanent basis, and 4) obviously very young looking characters. After this process, 16 ads remained, evenly split between MAD and ATI campaigns. Table 1 summarizes the ads.

**Measures**

Value-congruence of the ads was measured by asking participants immediately after viewing an ad to select the statement about marijuana use that best captured the ad’s message. Following the stem “If you use marijuana...”, the response options were: “...you may get into trouble,” “...you may injure or kill someone,” “...you may ruin your health,” “...you may not achieve much in life,” “...you may let down people who depend
on you,” and “...you may give up freedom to be yourself.” The values invoked in the statements are based on the value typology of Schwartz (Schwartz, 1992, 1994; Schwartz & Sagiv, 1995). Participants were allowed to select more than one response option if they felt that two statements captured the message equally well.

Attitude toward ad (MacKenzie and Lutz, 1989; Mitchell & Olson, 1981; Shimp, 1981) and emotional tone of ad were also assessed as part of the pretest. Measures of attitude toward ad consisted of five semantic-differential items (good/bad, appealing/not appealing, not irritating/irritating, effective/not effective, and powerful/weak) on a 1-7 scale ($\alpha = .86$). These were used as individual ad evaluations, but the mean score across ads for each campaign was also calculated and used as an outcome for tests of campaign effects.

Emotional tone questions (Pechmann & Reibling, 2006) asked whether the ad made the participant feel angry, sad, and disgusted ($\alpha = .79$), and amused, happy, and upbeat ($\alpha = .76$), with responses on a 1-7 scale anchored by “not at all” and “a lot.” As with attitude toward ad, emotional tone served as an individual ad evaluation but was also averaged across ads in each campaign for use in tests of campaign differences.

Furthermore, net affect was calculated by subtracting the mean of negative evaluations from positive evaluations in order to characterize the overall balance of emotion elicited. Lower (i.e., more negative) scores therefore denote a greater amount of negative affect relative to positive.
Attitude toward the brand (i.e., campaign) measures were adapted from Kelly and colleagues (2002). Participants were asked to consider the campaign as a whole based on the ads they saw and to evaluate the extent to which they found the campaign cool, appealing, effective, and likeable ($\alpha = .86$). Responses were on a 1-7 scale anchored by “not at all” and “a lot.”

Finally, attitude toward product category items asked participants to indicate the extent to which they thought marijuana use was dangerous, cool, enjoyable, and risky (Kelly et al., 2002). Responses were on a 1-7 scale anchored by “not at all” and “a lot.” Because an explicit objective of the MAD campaign was to influence beliefs about marijuana dangers (Foley & Pechmann, 2004), it was important to examine campaign effects on the items that were most closely related conceptually to that objective. Thus, the items about whether marijuana is dangerous and risky were combined into an index of perceived risk ($r = .58$, $p < .0005$). The items about whether marijuana is cool and enjoyable were likewise combined into an index of perceived desirability ($r = .66$, $p < .0005$). These indexes were treated as related outcomes in MANCOVA.

Covariates. Because the evaluation of televised ads may be influenced by greater use and liking of television in general, television affinity (Rubin, 1981) was measured by asking participants the extent to which they agreed with five items, such as “Watching TV is very important in my life” ($\alpha = .86$ for all items). Response options were on a 1-5 scale anchored by “strongly disagree” and “strongly agree.”
In light of research that has shown that an orientation toward risk (i.e., sensation seeking) can change the effects of health-relevant messages (e.g., Manning, Kelly, & Comello, 2009; Slater, 2003), sensation seeking was also measured to serve as a potential covariate or moderator of campaign effects. A four-item scale (Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002) that has been validated against more extensive measures of sensation seeking (Stephenson, Hoyle, Palmgreen, & Slater, 2003) was used in the study ($\alpha = .78$). Finally, age was measured to control for possible age effects on outcomes of interest.

*Procedures*

The study used MediaLab (Jarvis, 2008a) for presenting stimuli and recording responses. After participants signed consent forms, they were seated at individual computer stations in private rooms. Participants then completed measures on television affinity and sensation seeking. For one third of the participants, attitude toward marijuana use items appeared at this time. Next, participants viewed all eight ads (appearing in random order) from either MAD or ATI and completed ad evaluation measures after each one. After seeing all the ads, participants completed attitude toward the campaign measures. For the two thirds of participants who had not yet completed attitude toward marijuana measures, those items appeared next. Finally, all participants were debriefed and dismissed with thanks.
Results

Pretest

Table 1 provides a description of the ads, and Table 2 summarizes results of individual ad evaluations relevant to the pretest: primary and secondary value categorizations, as well as means and standard deviations of attitude toward ad and emotional tone.

The primary purpose of the pretest was to choose ads for the main study that were unambiguous representatives of a particular value category (i.e., judged by most participants as belonging to one category and to no other). Ads were identified that had very high agreement (over 80% of participants) that it belonged in a category and were not also classified as belonging in another category by more than half of participants (see Table 2). Ads fitting those criteria were Drive-Thru and Memorial (Harming Others); Transformation and Smushed (Autonomy); Wallet and Pete’s Couch (Achieve); and Championship, Conversation, and Shoulders (Responsibility).

In terms of attitude toward ad and emotional tone, t-tests of differences from the grand mean were calculated as potential indicators of extremity from other ads in the general pool. The grand mean was chosen as the criterion given the purpose of the pretest to select ads that were reasonably similar overall yet differed on theme; therefore, a common standard was used. Relative to the grand mean, ads that elicited more negative attitudes were Concert, 4 Cigarettes, Smushed, and T-shirts. Ads that elicited more
positive attitudes were Memorial, Transformation, Pete’s Couch, and Conversation. With respect to emotional tone, ads that had aroused more negative emotion relative to the mean were Drive-thru, Couple, Memorial, and Conversation, whereas ads that had more positive emotional tone were Shacoya, Whatever, Pete’s Couch, Shoulders, and T-shirts.

Although these measures were originally included to weed out ads that were outliers in undesirable ways, it also made selection more complex because some of the ads that had been flagged as unambiguous exemplars were different from the mean on these items, but culling out these ads would have removed most or all exemplars. However, the ratings provide a means of checking that positive and negative deviations from the mean are balanced (e.g., higher-than-average attitude toward ad ratings for Transformation and lower-than-average for Smushed in the category of autonomy), or if both deviations are in the same direction, that only one is significantly different from the mean (e.g., negative emotional tone for both Championship and Conversation in the category of benevolence, but only Conversation is different from mean).

**Campaign Effects on Attitude Toward Ad, Emotional Tone, Attitude Toward Brand, and Attitude Toward Product Category**

Because sensation seeking was the only variable among potential covariates that correlated with outcomes, it was the only one entered as a covariate in the following analyses.
The campaigns did not differ in terms of mean attitude toward ad \( [F(1,93) = .04, p = .85] \) nor in mean attitude toward brand \( [F(1,93) = .18, p = .67] \). However, there was a significant difference in emotional tone \( [F(1,93) = 40.45, p < .0005, \text{partial } \eta^2 = .30] \), with the net affect of MAD ads \( (M = -1.70, SD = 1.37) \) more negative than that of ATI ads \( (M = -.23, SD = 1.01) \).

Whereas the individual-ad evaluation measures were taken after campaign exposure for all participants, attitudes toward the product category (marijuana use) were measured before exposure for a third of participants to serve as baseline, thus creating three levels of exposure. MANCOVA was conducted to see if the perceived risk index (risky and dangerous) and the perceived desirability index (cool and enjoyable) would as a pair discriminate among levels. Results were significant at the multivariate level, Wilks’ \( \lambda = .89, F(4,182) = 2.84, p = .03, \text{partial } \eta^2 = .06 \).

At the univariate level, results were significant for the perceived risk index \( [F(2,92) = 3.29, p = .04, \text{partial } \eta^2 = .07] \). Pairwise contrasts showed that MAD exposure was associated with significantly higher risk perceptions compared to ATI exposure (mean difference = 1.03, \( SE = .42, p = .02 \)) and marginally higher compared to baseline (mean difference = .77, \( SE = .42, p = .07 \)). The difference between ATI and baseline with respect to risk perceptions was not significant (mean difference = -.26, \( SE = .41, p = .53 \)). With respect to the perceived desirability index, there were no group differences at the univariate level, \( F(2,92) = 1.54, p = .22 \).
Post-hoc Analysis

To summarize, the data suggest that the MAD and ATI campaigns differed primarily in terms of emotional tone and perceived risk of marijuana, at least based on evaluations of the ads included in the pretest. The effects on perceived risk are to be expected, given that the MAD ads were extensively copy-tested to ensure impact on key beliefs about marijuana dangers (Foley & Pechmann, 2004). Although there were no differences in terms of mean levels of attitude toward ad and attitude toward campaign, an issue for further investigation is whether theorized causal linkages between attitude toward ad and attitude toward brand would be observed in the data. A preponderance of data has supported this linkage (e.g., Shimp, 1981; Mitchell & Olson, 1981); however, other work has argued that affective responses to advertising are the primary mechanism underlying ad affects on brand attitudes (Machleit & Wilson, 1988). A meta-analysis by Brown and Stayman (1992) suggests a more moderate position in which both attitudinal and affective factors influence brand attitudes.

The extent to which both variables serve as mechanisms with respect to the present data was examined in a multiple mediation analysis that specified mean emotional tone and mean attitude toward ad as potential mediators of campaign effects on attitude toward campaign (Figure 1).
This configuration was examined using a macro designed to test for multiple mediation (INDIRECT version 3.0; Hayes, 2007). Campaign (MAD vs. ATI) was specified as the independent variable. The mean of the four attitude toward campaign items served as the dependent variable, with higher scores indicating more positive
attitudes. Mean scores for emotional tone and attitude toward ad (based on all ads rated by a participant within a campaign) were specified as mediators. Higher scores indicated more positive net affect for emotional tone, while lower scores indicated more positive ad attitudes. The analysis used the full sample (n = 96).

The results supported indirect effects via emotional tone, but not via attitude toward ad. Considering pathways through emotion: as would be expected from previous results, the path between campaign and emotional tone was significant, with exposure to ATI associated with more positive emotional tone (b = 1.49, SE = .23, p < .0005). The path between emotional tone and campaign attitudes was also significant (controlling for campaign exposure), with more positive tone associated with lower scores (i.e., less positive attitudes) on the campaign attitudes index (b = -.16, SE = .07, p=.04). Although the path between campaign exposure and ad attitudes was non-significant (consistent with earlier analysis), the path between ad attitudes and campaign attitudes was significant, with more positive ad attitudes associated with more positive campaign attitudes (b = -.92, SE = .09, p < .0005).

With regard to specific indirect effects, there was evidence of indirect effects through emotional tone (estimate = -.23, SE =.12, CI = -.48 to -.01), but not through attitude toward ad (estimate = .04, SE = .17, CI = -.40 to .28). Thus, it appears that in the present data, emotion plays a more important role than does ad attitudes in the
explanation of campaign effects on campaign attitudes. All of the variables in the model accounted for about 59% of the variance in campaign attitudes.

Discussion

The purpose of this study was to select unambiguous exemplars of value-based messages for the purposes of the subsequent experiment, and to shed light on the success of the revamped national media campaign.

With respect to the first aim, the study identified two or three exemplars for each of the following themes based on values undermined by marijuana use: autonomy, achievement, responsibility (i.e., not letting down people who depend on you), and avoiding injuring or killing others. Autonomy was a theme of interest given the intended youth audience of the ads, the college-age participant pool for the subsequent experiment, and the importance of autonomy-development during adolescent and young adult years (Hill & Holmbeck, 1986); therefore, the theme and exemplars were retained. For the theme of avoiding injuring or killing others, both exemplars featured African-American males, which would potentially confound the effects of theme; therefore, that theme was dropped. The remaining themes both seemed viable, but it was decided to choose only one additional theme for the main experiment. The highest percentages of agreement were associated with Championship (96%) and Conversation (94%), both belonging to
the theme of responsibility. Therefore, the theme of responsibility and both exemplars were included in the subsequent study.

The campaign effects experiment provides evidence suggesting that the ONDCP’s latest strategy is qualitatively different from previous efforts in that ATI ads tend to evoke more positive net affect overall and appear to be less focused on risk perceptions, compared to MAD. Although the effect on risk perceptions would not seem a desirable outcome given the mechanisms proposed by behavior change models, it is not entirely unexpected because some ATI ads provided an outright acknowledgment of the safety of marijuana (“safest thing in the world” from Pete’s Couch), combined with the lack of scenes about injuring or killing someone else because one is high. Despite its associations with perceptions of lower risk, the campaign is nevertheless having wholesome effects on behavior in the field (Slater et al., 2010).

What could account for this? Although one might argue that the type of risk that matters most in prevention campaigns is social rather than health (Pechmann, Zhao, Goldberg, & Reibling, 2003) and so therefore ATI worked by increasing social risks, this proposed mechanism seems unlikely because perceptions of coolness of marijuana use would have differed, and this was not observed. It is suggested that an identity as a nonuser may have been more strongly activated by ATI compared to MAD, and that such a construct may have more explanatory value than beliefs about risk. Study 2 addresses
this possibility in the context of testing nonuser identity activation as a function of messages positioning nonuse as consistent with values.
Study 2: Activation of Self-Concept as Nonuser of Marijuana

Whereas Study 1 pitted MAD and ATI ads, Study 2 compares ads in terms of values supported by non-use. The key construct of nonuser identity is tested as a mediator (along with potential others) of exposure effects on behavioral willingness in order to explore mechanisms that might be at play. To review, the following hypotheses are advanced, with some revising of H4 to reflect the values that emerged from Study 1:

H1: Exposure to prevention ads (theme vs. control) will result in greater accessibility of a) nonuser self view and b) lower behavioral willingness, relative to control.

H2: Nonuser self view will predict behavioral willingness (controlling for theme effects), with more accessible nonuser self view associated with more unwillingness.

H3: There will be significant indirect effects of exposure on willingness via nonuser self view.
H4: a) Exposure to ads linking nonuse to autonomy will result in greater accessibility of a view that marijuana use is inconsistent with autonomy.  b) Exposure to ads linking nonuse to responsibility toward others will result in greater accessibility of a view that marijuana use is inconsistent with responsibility.

RQ1: Which theme will be more effective in a) increasing accessibility of nonuser self view, b) increasing accessibility of view that marijuana use is inconsistent with target values, and c) lowering behavioral willingness to use marijuana?

RQ2: Will importance of autonomy and responsibility as values moderate the effects of theme?

Method

Participants

One hundred twenty nine undergraduate students participated in the experiment. The mean age was 20.66 (SD = 2.16). Thirty two percent were male, and 68% were female. The breakdown by ethnicity was White (76%), Black (6%), Asian (12%), Hispanic (3%), and other (3%).
Design and Stimuli

The study used a post-test-only, between-subjects experimental design with random assignment to one of three conditions: 1) exposure to messages about marijuana non-use supporting autonomy, 2) exposure to messages about marijuana non-use supporting responsibility to others, and 3) no exposure to marijuana-related messages.

Based on the results of Study 1, the ads representing the autonomy-support theme were Transformation and Smushed, and the ads representing responsibility-support were Championship and Conversation (see Table 1 for ad descriptions). Whereas Study 1 presented ads in isolation of the media environment in which they would normally be encountered, Study 2 embedded ads in a TV clip for a more naturalistic viewing experience for participants and greater ecological validity for the study. The ads were embedded in a game show clip that included commercial breaks (per Pechmann et al., 2006). An eight-minute segment of Wheel of Fortune was selected that included two commercial breaks and that balanced the successes of male and female contestants. In the two value-support conditions, participants had a single exposure to each of the exemplars, with one embedded at the end of each of the two breaks. The embedded ads replaced the last 30-second commercial appearing in each break (in the selected segment, these were an automobile ad and an informational ad for a local literary organization). Thus, length of total media exposure was held constant across conditions.
Measures

Dependent variables. The approach taken in Study 2 of measuring activation of self-concepts and related constructs was to use response-time latency in speeded categorization tasks, which has been validated as a measure of category-item associative strength (Fazio, Williams, & Powell, 2000). A response-time task that has been developed with respect to self is the “me/not-me” self-categorization task (Markus, 1977), which has been used in numerous studies to assess activated self-concepts (e.g., Bargh, McKenna, & Fitzsimmons, 2002; Forehand, Deshpandé, & Reed, 2002) including recent work in a substance abuse prevention context (Comello & Slater, accepted).

In line with previous work, participants saw the stem word “me” at the top of the screen, and then were presented with a set of attributes, with each attribute appearing onscreen one at a time beneath the stem word. Participants were asked to indicate as quickly as possible whether the word was self-descriptive or not by pressing keys representing “yes” or “no”. Thus, the outputs of the task are response (yes/no) as well as reaction time (to the nearest millisecond), with quicker reaction times indicating greater accessibility. For all tasks, filler words appeared along with target words to mask the nature of the task, and the order of presentation was randomized.

The extent to which the conditions elicited a nonuser self view (H1a) was measured by the quickness to respond “no” to two attributes potentially describing the self: pothead and druggie. The correlation of the variables (corrected for average
reaction time and analyzing only same-valence responses) was significant ($r = 0.41$, $p < 0.0005$). Although this variable could have been operationalized using “yes” responses to target words or phrases meaning “nonuser of marijuana,” the reaction-time task demanded target words that were very short yet unambiguous about marijuana non-use. Because suitable words were difficult to find, the variable was operationalized by dis-identification with words signifying that one is a user of marijuana.

The effect of condition on behavior willingness to use marijuana (H1b) was also operationalized using a reaction-time measure developed in previous work (Comello & Slater, accepted; Comello, 2009b). Participants responded to a variety of scenarios involving risky behaviors in social situations that were presented in random order. The target scenarios for marijuana use were: “Suppose you are at a party with friends, and one of them passes you a joint. What would you do?” and “Suppose you are hanging out with friends on a Friday night. Someone offers you a hit on a joint. What would you do?” These scenarios were followed by another screen presenting the response option “I would smoke until I was high” and the response options of yes or no.

This operationalization is consistent with the traditional use of risk-conducive scenarios in measuring behavioral willingness; however, the operationalization is different in that the dependent variable is reaction time to a single risky choice, rather than a deliberative response indicating the likelihood of engaging in behavior at different risk levels as used in previous studies (e.g., Gibbons et al., 2003). Because behavioral
willingness has been conceptualized as an essentially non-reasoned readiness to act, it could be argued that a non-deliberative measure is a more appropriate operationalization.

For the sake of comparison with a non-deliberative measure, a deliberative two-item measure of behavioral intention to use marijuana was also included. Participants were asked to indicate how true the following statement was for them: “I’ve decided for sure I will stay away from marijuana”; response options ranged from 1 to 4 with the labels definitely true, mostly true, maybe true, and not at all true. Participants also indicated how likely they were to use marijuana in the next six months, with response options ranging from 1 to 5 anchored by very unlikely and very likely. The two items were related \((r = .79, p < .0005)\).

The accessibility of views that marijuana use is inconsistent with target values (H4) was measured in two separate tasks by quickness to categorize “smoking pot” and “getting high” as consistent or not with the stem words “independent” (representing the value of autonomy) and “responsible” (representing a sense of duty and caring toward others, or benevolence, in the Schwartz value system). The format was similar to the me/not-me task. For each task, the stem word remained at the top of the screen, and target and filler words appeared under the stem word one at a time in random order. Participants then responded “yes” or “no” as quickly as possible. The correlations of the two items were significant for both marijuana inconsistency with autonomy \((r = .56, p < .0005)\) and marijuana inconsistency with responsibility \((r = .57, p < .0005)\).
*Other variables accounted for.* Given the reaction-time measures of the present study, it was critical to account for individual differences in ability to respond quickly to prompts (Fazio, 1990). The measure of baseline quickness to respond was participants’ mean reaction time in a practice categorization task that preceded stimuli exposure and all other tasks. The variable was used as a covariate for all outcomes except for the intention measure, which was not measured via reaction times.

Values importance (proposed as a potential moderator by RQ2) was measured using the Portrait Values Questionnaire (PVQ; Schwartz, Melech, Lehmann, Burgess, Harris, & Owens, 2001; Hinz, Brähler, Schmidt, & Albani, Cornelia, 2005). Participants responded to a series of two-sentence descriptors (i.e., portraits) of a person and then were asked to judge their similarity to that person. The PVQ was designed to be more concrete and less cognitively demanding than the Schwartz Values Survey (Schwartz, 1994; Schwartz & Sagiv, 1995) on which the PVQ is based.

Although the PVQ assesses ten universal values, the values of most interest to this study given the themes of the ads were autonomy and responsibility/benevolence. Each was assessed with four portraits, per the validated instrument of the PVQ. An example portrait for autonomy is “It's important to her to be independent. She likes to rely on herself.” An example for benevolence is “It's very important to her to respond to the needs of others. She tries to support those she knows.” Portraits were tailored to the gender of the participant by changing the pronouns and referents as appropriate. After
reading each portrait, participants responded to the question “How much like you is this person?” Response options were on a six-point scale anchored by “very much like me” and “not like me at all.” Reliabilities for the four items in each scale: autonomy, $\alpha = .62$; benevolence, $\alpha = .71$.

Other variables measured as potential covariates included age, past-month marijuana use, sensation seeking, and TV affinity. The measures of sensation seeking and TV affinity were the same as those used in Study 1. To measure past-month use, participants were asked how often in the past 30 days they had used marijuana. The eight response options were 0 days, 1 or 2 days, 3 or 4 days, 5 or 6 days, 7 or 8 days, 9 or 10 days, 11-20 days, and 21-30 days.

**Procedures**

The study used MediaLab (Jarvis, 2008a) and DirectRT (Jarvis, 2008b) software programs for presenting stimuli and questions. After signing consent forms, participants began the computer-administered study in private rooms. First, participants answered questions about demographics and values importance. Then, they completed the practice categorization task that served as the measure of baseline reaction speed. The eight-minute clip followed. Next, participants answered questions to check recall of ads and the clip in which they were embedded. These were followed by the reaction-time measures of marijuana inconsistency with target values, nonuser self view, and behavioral willingness. Participants in the two value-support conditions were then
exposed to the PSAs they had seen in the clips and asked to choose which among several value statements (same as used in Study 1) was best supported by the two ads. (If this second exposure had occurred prior to the dependent measures, the effects of theme would have been confounded with that of total length of exposure to TV content.) All participants were then debriefed and dismissed with thanks.

Data Cleaning and Analysis

Reaction-time data were handled based on guidelines from Fazio (1990). First, responses that were over 9000 ms in length (n = 1) were specified as missing, as these likely represent instances in which participants became distracted or ignored the instructions to respond as quickly as possible with a top-of-the-head response. Also, responses that were shorter than 300 ms were trimmed, as participants would not be able to perceive the stimulus in less than 300 ms (n=2). Then, given the strong positive skew of reaction time data, the data were transformed using a negative reciprocal transformation (-1000/x). The transformed data correspond to the raw data, in that lower transformed scores indicate lower raw scores; in other words, more negative scores indicate faster reaction times. These data were used in subsequent analyses.

Next, the valence of responses was inspected. As suggested by Fazio (1990), in situations where one response is expected to be numerically dominant, it is useful to limit analysis to the subsample of dominant responses. It was decided to limit analysis in situations in which dominant responses constituted 90% or more of cases; this was the
case for all variables except the behavioral willingness items, in which “yes” and “no” responses were more evenly distributed. For these variables, the plan was to retain all cases and use valence as a blocking variable.

The distribution of “yes” and “no” responses was therefore inspected across conditions using $\chi^2$ tests to see whether condition had an effect on valence of response. Such an outcome would be unlikely, given that traditional deliberative measures are often not sensitive to non-deliberative message processing effects (see Comello & Slater, accepted, with regard to message effects on non-deliberative willingness but not on deliberative intention measures). Nonetheless, they were inspected to check for the possibility. Further, in the case of the behavioral willingness variables, demonstrating the independence of valence and condition would indicate acceptability to use valence as a blocking variable.

The plan was first to examine main effects of condition before testing hypotheses on mediation in order to employ the most appropriate variables in that analysis. Thus, the analysis began by testing effects on categorization of self as nonuser (H1a), followed by marijuana inconsistency with autonomy and responsibility (H4a and H4b, respectively). For tests of these hypotheses, MANCOVA was used to examine the effect of condition on the items operationalizing each outcome. Although an alternative method of examining these outcomes would have been to combine them into an index to be entered as a single outcome in univariate ANCOVA, they were entered as related outcomes in
M ANCOVA to permit examination of both variables as an emerging construct (Cole, Maxwell, Arvey, & Salas, 1993)\(^2\) as well as examination of individual item sensitivity to condition effects. Covariates were average reaction-time in the practice task (transformed with a negative reciprocal transformation), age, and 30-day use, which were the only variables that were consistently related to outcomes of interest. Analysis was followed up by inspection of univariate results and pairwise contrasts (addressing RQ1a-c regarding relative effectiveness of themes).

H1b regarding behavioral willingness was then tested by conducting ANCOVA on the two willingness variables singly, as valence could not be combined sensibly across outcomes in MANCOVA. For these analyses which specified valence as blocking variable, it is important to note that evidence for an effect of condition would not be indicated by a main effect, which would collapse across “yes” and “no” responses, but rather by significance of the interaction term and then decomposition by conducting analysis separately by valence.

For the hypotheses regarding mediation (H2 and H3), a macro was used that is capable of testing for indirect effects in a model with multiple mediators (INDIRECT version 3.0; Hayes, 2007). The plan was to examine nonuser self view and marijuana

\(^2\) An emerging construct is defined by Cole and colleagues as an abstraction that results from the combined effects of all measures. It is distinct from a latent construct in that an emergent construct is in a sense more empirically driven. Given that the reaction-time measures used in the present study have not yet been tested formally as scale items or as indicators of a latent construct, they were treated as emergent in order to derive as much information as possible about both their ability as a group to discriminate among conditions, as well as individual performance as outcomes.
inconsistency with values as potential mediators, provided these variables had shown sensitivity to condition effects in earlier analyses. The research question regarding the moderation of theme effects by value-importance (RQ2) was explored using a macro that is able to determine the values of the moderator at which the effect of the focal predictor is significant (MODPROBE version 1.0, Hayes, 2008).

Results

Recall and Manipulation Checks

All participants correctly identified the game-show clip they had viewed. The majority of participants in the autonomy-support (86%) and responsibility-support (77%) conditions reported that they had seen at least one public service announcement in the clip; all of these participants correctly identified the type of PSA as a drug-prevention PSA. Among those in the control condition, only half recognized the single informational ad for the literary organization as a public service announcement, and of those who did, all but one correctly identified the organization. With regard to the question at the end asking participants in the value-support conditions to categorize the ads they had seen, the great majority of participants (over 96% in both conditions) correctly classified the ads’ message as supporting the value they had been chosen to represent.
Inspection of Valence

For all outcomes except for the two behavior willingness items, the majority of responses (92% - 97%) were in the direction consistent with nonuse. The small minority of responses in the opposite direction were excluded from further analysis, per the analysis plan. With regard to the willingness items, approximately 23% of responses for each item were consistent with use (i.e., “yes” to engaging in the risky behavior presented by the scenario). The distribution of “yes” and “no” responses for these two variables did not differ by condition (p values for $\chi^2$ statistics all above .8), thus permitting use of valence as a blocking variable in subsequent analysis.

For the other items, valence also did not vary by condition, except in the case of self-concept as a “pothead.” Participants in the responsibility-themed condition were more likely to respond “yes” (n = 7) to a self-categorization as a pothead than were those in the other conditions combined (n = 3), $\chi^2 = 6.7$, df = 2, p = .04. Given the low number of “yes” responses overall, however, these were dropped from subsequent analyses.

Hypothesis Tests

H1a proposed that exposure to prevention ads (theme vs. control) will result in greater accessibility of a nonuser self view. The hypothesis was not supported at the multivariate level. MANCOVA on quickness to respond that “pothead” and “druggie” were not consistent with self did not yield significant results, Wilks’ $\lambda = .95$, F(4,218) = 1.50, p = .21. However, there was significance for the druggie item at the univariate
level, $F(2,118) = 3.21$, $p = .04$, partial $\eta^2 = .05$. Pairwise comparisons showed that the responsibility condition was associated with slower responses (i.e., longer latencies) to say “no” to being a druggie than control (mean difference = .14, SE = .06, $p = .01$), opposite of predictions. See Table 3 for raw mean reaction times and cell sizes across conditions. There were no other significant pairwise contrasts.

The next set of hypotheses predicted that exposure to prevention ads with a value-support theme will result in greater accessibility of a view that substance use is inconsistent with that theme, relative to those not exposed. Considering autonomy first (H4a), MANCOVA was conducted with the two items assessing inconsistency of marijuana with autonomy. There was no significance at the multivariate level, Wilks’ $\lambda = .99$, $F(4,222) = .37$, $p = .83$, nor at the univariate level.

Turning next to responsibility (H4b), MANCOVA with the two outcomes showed multivariate significance, Wilks’ $\lambda = .85$, $F(4,222) = 4.60$, $p = .001$, partial $\eta^2 = .08$. At the univariate level, only the smoking pot item was significant, $F(2,119) = 7.07$, $p = .001$, partial $\eta^2 = .11$. Significant differences existed between the responsibility condition and all others; however, they were in the direction opposite of what was expected. Participants in the responsibility-support condition were slower to say that smoking pot was inconsistent with responsibility toward others vs. those in the autonomy-support condition (mean difference = .18, SE = .07, $p = .01$) and control condition (mean difference = .26, SE = .07, $p < .0005$). See Table 3 for mean reaction times by condition.
H1b proposed that exposure to prevention ads (theme vs. control) will result in lower behavioral willingness to use marijuana. ANCOVA with valence as a blocking was performed for both behavioral willingness items. For the first item (smoking joint at a party with friends), there was a significant interaction of condition and valence, $F(2,119) = 4.62, p = .01$, partial $\eta^2 = .07$. Figures 2 and 3 provide alternative views of the interaction.

The interaction was probed by conducting analysis on those who responded “yes” and “no” separately. In terms of those who said “yes,” there was no effect of condition, $F(2,22) = 1.93, p = .17$. With respect to the “no” responses, there was a main effect of condition, $F(2,94) = 5.11, p = .008$, partial $\eta^2 = .10$. Again, participants in the responsibility condition were slower to respond than control (mean difference $= .23$, SE $= .08$, $p = .004$). However, in this case, participants in the autonomy condition were also slower to respond than control (mean difference $= .19$, SE $= .08$, $p = .02$). See Table 3 for raw mean reaction times across conditions for the subset of “no” responses on this variable. In terms of the other willingness outcome (hanging out with friends), there was a nonsignificant interaction of condition and valence [$F(2,120) = 1.19, p = .31$], and no further probing was conducted.
Figure 2. Effect of condition by valence on willingness (Study 2)

Notes. Conditions 1, 2, and 3 refer to autonomy-support, responsibility-support, and control conditions, respectively. Dependent measure is transformed reaction time, with more negative scores indicating faster reaction times. Reaction times are corrected for baseline reaction speed, 30-day marijuana use, and age. Decomposition showed significant differences only among those responding “no.”
Figure 3. Effect of condition by valence on willingness, with error bars

Notes. Alternative view of interaction depicted in Figure 2 to show variability around means. All other notes from Figure 2 apply.
While the previous hypotheses pertained to theme effects, H2 and H3 made predictions about mediation: specifically, that any effects on willingness would be carried via self view as a nonuser. H2 predicted that nonuser self view would negatively predict behavioral willingness (controlling for theme effects), with more accessible nonuser self view associated with lower levels of behavioral willingness, while H3 predicted that there would be significant indirect effects of exposure on willingness via nonuser self view.

The hypotheses were tested with the INDIRECT macro (version 3.0; Hayes, 2007). The outcome was specified as the single item measuring behavioral willingness (smoking a joint at a party) that had shown sensitivity to condition effects. Condition was the independent variable; however, it was dichotomized to allow sensible interpretation of results. Given that most of the significant pairwise contrasts involved quicker response times compared to the responsibility condition, the condition variable was recoded with exposure to the responsibility condition labeled 1 and all others 0.

The focal mediator was nonuser self view, which was represented in the model by categorization of self as a druggie. As a more rigorous test of mediation via self view, marijuana inconsistency with responsibility (the smoking pot item) was entered as a competing mediator (Figure 3). Although previous analyses suggested that effects of theme were in the direction opposite of what was predicted, there is theoretical value in
examining whether the ads may have failed due to insufficient effect on self-concept or on beliefs about marijuana inconsistency.

Prior to analyzing with the INDIRECT macro, cases were excluded from analysis if the response valence on any of the three reaction-time variables was opposite of the majority; the resulting sample size was 98. Covariates were the same as those used in prior analyses.

Figure 4. Conceptual model of multiple mediation tested in Study 2 (depicting mediation of exposure effects on behavioral willingness via views of nonuser self and of marijuana inconsistency with responsibility)
In this model, there was a significant effect of exposure to the responsibility-support theme on both nonuser self view (b = .12, SE = .05, p = .04) and marijuana inconsistency with responsibility (b = .21, SE = .07, p = .003). In both cases, exposure to the responsibility theme was associated with longer reaction times to say “no,” consistent with the previous findings.

H2 predicted that nonuser self view would in turn predict behavioral willingness (controlling for theme effects), with more accessible nonuser self view associated with less behavioral willingness (i.e., more unwillingness); thus, a positive relationship would be expected. Results supported H2, with a significant path between self view and behavioral willingness, b = .32, SE = .13, p = .02. The path from marijuana inconsistency with responsibility and behavioral willingness was non-significant, b = .04, SE = .11, p = .67.

H3 predicted that there would be significant indirect effects of exposure on willingness via nonuser self view. The hypothesis was supported: the specific indirect effect of theme through nonuser self was significant (estimate of indirect effect = .03, SE = .02, bootstrap CI = .0039 to .0893), whereas the specific indirect effect through marijuana inconsistency was non-significant (estimate of indirect effect = .01, SE = .03, bootstrap CI = -.0492 to .0601). Together, the variables in the model accounted for about 24% of the variance in the outcome.
RQ2 asked whether the effect of theme would be moderated by values-congruence. In other words, would the effect of viewing ads linking marijuana non-use to autonomy and to responsibility/benevolence differ based on the importance placed on those values?

This question was explored using the MODPROBE macro, per the analysis plan. Models were specified with dichotomized variables for exposure to each of the conditions (0=not exposed, 1=exposed) as focal predictors. (It is acknowledged that this contrast scheme is not orthogonal and contains some redundancy, but it seemed more informative than selecting just one theme.) Thus, the following analyses contrast exposure to autonomy-support theme vs. all others, and responsibility-support theme vs. all others.

As outcomes in these analyses, the three reaction-time variables that have already demonstrated sensitivity to condition effects were examined (druggie, joint-at-party, and smoking pot consistency with responsibility). The value-importance indexes of autonomy and responsibility toward others (benevolence in the Schwartz system) were specified as moderators of the effects of exposure to the autonomy and responsibility themes, respectively. The value-importance indexes were also used as control variables, such that a model specifying (for example) autonomy-theme exposure as the focal predictor and autonomy importance as the moderator would include responsibility importance as a covariate. Other covariates entered in the models were age, 30-day use, and baseline reaction speed.
Regression results generated by the macro showed that none of the interactions between exposure to a value-support theme and importance of that value were significant (p values ranging from .14 to .81). However, for insight, it was decided to utilize the capability of the macro to calculate effects of the focal predictor at different levels of the moderator (Johnson-Neyman method; see Hayes & Matthes, 2008) and to highlight the levels, if any, at which the effect of the focal predictor is significant (i.e., regions of significance). To make clear, then: the following results are based on inspection of regions of significance despite nonsignificance of the interaction term, in the interest of learning more about potentially different effects of exposure. Sample macro output is provided (see Appendix) to aid in visualizing the changing effect of exposure at different levels of the moderator.

Considering the druggie outcome first, it appeared that there were significant effects of exposure to the responsibility-support ads at the highest levels of benevolence importance. At values of benevolence importance between 1 and 2.25 (indicating high similarity to a person who is caring, loyal, and responsible toward others), the effect of exposure was positive and significant. (See Appendix for macro output of this analysis.) At these levels, people who saw the responsibility-support ads were significantly slower to say “no” to being a druggie than were those in other conditions. No regions of significance emerged when examining the effect of autonomy-support ads across levels of autonomy importance.
Turning to the joint-at-party outcome next, there were no regions of significance for exposure effects across all levels of autonomy and benevolence importance. Finally, with respect to the outcome about smoking pot consistency with responsibility, regions of significance emerged for the effect of exposure to the responsibility-support clip at different levels of responsibility importance. Participants with scores between the levels of 1 and 2.98 were significantly influenced by exposure; at these levels, the effect of exposure was positive, indicating slowing of responses. There were no regions of significance for the effect of the autonomy-support clip exposure at any levels of autonomy importance.

Overall, the pattern of results from exploring RQ2 indicates that the effects of exposure can depend on levels of value importance. Generally, there were effects only among people who placed high importance on benevolence, and these effects tended to slow rather than quicken responses relative to those not exposed.

Finally, while not formally posed as a research question or hypothesis, the effect of condition was examined on the deliberative measure of intention, for the sake of comparison with effects on non-deliberative outcomes. There were no group differences on this variable \([F(2,124) = .24, p=.79]\), as might be expected from previous findings (Comello & Slater, accepted).
Study 2 – Discussion

The purpose of Study 2 was to examine the effects of ads that positioned nonuse as supporting autonomy and responsibility toward others. It was hypothesized that these ads would have effects on self-concept as a nonuser and on behavioral willingness to use marijuana, and – more central to the theoretical claims of this dissertation – that effects on behavioral willingness would be mediated by self-concept as a nonuser. Although the ads did not have effects in the predicted direction, the mechanism via self-concept activation was supported, consistent with recent theoretical (Comello, 2009a) and empirical work (Comello & Slater, accepted).

The primary question is why the ads (particularly the responsibility condition ads) did not perform as expected in this context. The responsibility ads appeared to lower accessibility of a view of self as a nonuser and of a view that marijuana is inconsistent with responsibility toward others; in addition, they slowed responses indicating unwillingness. The autonomy ads had effects indistinguishable from control in most cases, so they did not appear to boomerang as the responsibility ads seemed to do; still, the findings are puzzling and invite questioning. On the one hand, expecting the ads to outperform a control clip may seem unwarranted, given the lack of positive effects for the My Anti-Drug campaign in the field. But only one ad in the present study came from that campaign, while the other ads were from the more successful Above the Influence
campaign, which a recent evaluation has shown to have protective effects (Slater et al., 2010).

A basic question is whether participant groups were equivalent across conditions: in other words, did random assignment work? For instance, it could be the case that participants in the drug prevention conditions simply were more inclined to use substances to begin with, which might predispose them to have less accessible nonuser selves and higher willingness to use substances. However, there were no differences among groups in terms of 30-day use \[F(2,126) = .40, p = .67\] and sensation seeking \[F(2,126) = .13, p = .87\]. Additionally, there were no differences in baseline reaction speed \[F(2,126) = .85, p = .43\] or in value importance [autonomy, \(F(2,126) = .91, p = .41\); benevolence, \(F(2,126) = 2.0, p = .14\)].

The next basic question is whether stimulus materials were equivalent across conditions. A potential issue is whether the control clip created a “true” control condition from which to measure baseline. As explained in the methods section, the clips were identical except for the last 30-second commercial in each of the two breaks. In the prevention conditions, these spots were occupied by the ONDCP PSAs, but the control condition retained the originally appearing ads. Although this was done to control for length, the originally appearing ads (an ad for an automobile with special financing deals, and an informational ad for a local literary organization) may have had unintended influences.
For example, one might argue that the informational ad, because of its prosocial content, may have elicited more positive self views among viewers, which could then have led to lower behavioral willingness to use substances. If this were the case, however, differences should be found in other self views as well, but across a wide variety of positive and negative traits used as filler items on the me/not-me task, there were no differences among conditions [e.g., intelligent, F(2,123) = .16, p = .85; friendly, F(2,125) = 1.76, p = .17; achiever, F(2,120) = .22, p = .80; loser, F(2,123) = .27, p = .77]. Thus, it seems highly unlikely that the literary organization ad would have lowered willingness through a mechanism of enhanced self view.

An explanation of findings that seems consistent with the pattern of slower responses in the responsibility-support condition is that ads in that condition may have elicited more feelings of guilt, which may then have triggered reactance (Brehm, 1966). Guilt can be defined as a negative emotional state associated with possible objections to one’s behavior or intentions (Baumeister, Stillwell, & Heatherton, 1994) because of inconsistencies with personal or social standards. In the responsibility condition, both of the ads featured a main character who has used marijuana and as a consequence failed in fulfilling his commitments to important others. It is possible that these vignettes would have called attention to actual or potential inconsistencies in participants’ own standards and behaviors. A review of guilt inducing persuasive messages has shown that when guilt-based appeals are successful at inducing guilt, those appeals are unlikely to be
persuasive because they may arouse feelings of annoyance, irritation, and resentment that interfere with persuasive success (O’Keefe, 2002). In the context of this study, slowed responses on the reaction-time outcomes may have resulted due to cognitive and affective processes involved. Future research should examine this possibility by measuring negative affect elicited by the ads and testing the potential of these variables to mediate effects of condition on self-concept activation and behavioral willingness.

Yet another explanation for slowed responses in the prevention conditions generally is that study tasks may have posed an invitation to solve a puzzle, and this may have increased motivation to produce valid responses. Both stimuli and target words were conceptually related but the connection “hidden” from participants: the ads were embedded in a clip, and target words were embedded among filler words in the categorization tasks. Upon encountering a target word (for example, being asked to say whether smoking pot is consistent with caring for others), participants may have taken a moment to recall that they had seen ads about drug prevention in the clip, perhaps a moment more to consider whether the message of the ads was relevant to the question, and finally to decide whether they endorsed that argument or not.

While the nature of the task seems capable in itself of triggering a puzzle-solving frame of mind, the game-show content of the clip may have interacted with the tasks and content to contribute to the puzzle-solving mindset. This suggestion is consistent with research showing the ability of media programming to influence the processing of ads
embedded within (i.e., context effects; Bushman & Bonacci, 2002). If participants are playing along with the game show, they may have treated the questions that followed the clip as an extension of the game, and subsequent behaviors may have included making earnest attempts to have the right answer when they pressed the buzzer. The high cognitive effort that may have been triggered would clearly be at odds with the automatic processing of advertising that is presumed to be taking place.

Consistent with this explanation, dual-systems approaches in social psychology have posited that a desire to be accurate (that is, the need to reach a valid conclusion) is the most basic motive that might push an individual toward greater deliberation (Olson & Fazio, 2009). Although the game-show content was constant across conditions, it is argued that the prevention conditions had greater amounts of cognitive material to process, relative to control, prior to answering. It is further argued that the responsibility condition may have produced the greatest cognitive load among the conditions if the ads also induced guilt, as has already been argued. This would explain the observation that this condition produced the most pronounced differences from control.

To explore whether the media context contributed to the effect, future research could present stimuli and dependent measures in seemingly unrelated studies (i.e., a two-study ploy), which might help disconnect the components sufficiently; in such a design, participants may not feel the need to make sense of measures in light of stimuli. But given that advertisements are rarely seen outside of a media context in the real world, it
may be more useful to explore the impact of different media contexts on processing of anti-marijuana messages, with particular emphasis on the types of programming that young adults are most likely to view.

Whereas most of the explanations offered above pertain to design and participant demand issues, there are also questions pertaining to exemplar selection. The ads were chosen using a systematic process to ensure unambiguous categorization by value-support theme and to ensure reasonable similarity along key dimensions. Although such a process provided external validation of categories and was also an attempt to isolate theme-manipulation from other possible confounds, it is possible that other executions of theme might have performed better in activating a nonuser self-concept, relative to control. However, the screening process for age appropriateness and clarity of message left little choice in the end for alternative exemplars.

While it would not have been possible to match ads for all features given the limited selection, it would have been possible to account for differences in the main study by including measures of ad evaluations to serve as potential covariates or moderators. Examples of variables that should be considered in future study include affect elicited by the ad, which has already been discussed with respect to guilt. Measured affect could also include positive emotions, which Study 1 showed to mediate campaign effects.

Degree of identification with the main character of the ad (Cohen, 2001) could also be included as a measured variable, although one would need to specify whether
identification or dis-identification is the desired outcome. If the main character is modeling the appropriate behavior (as would be the case with Transformation), then identification is the desired outcome because the self-concepts of the character would be taken on as one’s own (Cohen, 2001). However, if the ad features a main character displaying undesirable behavior as a cautionary tale (as in Conversation, for example), then dis-identification would be the desired goal.

In either case, there might be a variety of factors that could interfere with the process, such as perceptions that non-using characters are too young, which would likely not trigger identification among young adults. Conversely, there may be characters who are targets for dis-identification but who are nonetheless attractive for other reasons and may induce identification. Attending to these issues at the pretest stage would help prevent the selection of ads that would send mixed messages. Additionally, measuring identification would allow for comparisons of condition effects among participants for whom the process is working as intended vs. those for whom it is not.

The ambiguous endings of some of the ads also may have invited rumination that was triggered by seeing an item that brought the ad to mind. Participants may have taken an extra moment to think: “Oh yeah, there was that ad about the kid who got kicked off the team for smoking pot. Too bad. I wonder whether the team could’ve won the championship anyway.” The wondering might be increased among those high in benevolence-importance, because they may care more about the characters and situations
in the ads. This possibility seems consistent with the findings on moderation of theme effects by benevolence-importance, in which those ads slowed responses among people who placed great stock in benevolence.

In sum, a number of alternative explanations have been offered to account for effects that were opposite from predictions or were nonexistent. An underlying theme is that the combination of game-show context, ads, and measures interacted to increase motivation to engage in greater deliberation, which then increased reaction times. However, while hypotheses for direction of theme effects were unsupported, there was support for hypotheses about mechanism through self-activation. A potential implication is that ads should operate on a more visceral level that would quicken rather than lengthen responses, in order to achieve desired effects as measured here. Further study should continue to rule out alternative explanations in order to arrive at a better understanding of the processing of drug prevention messages.
General Discussion

This dissertation began with a conceptualization of identity that is multifaceted and shifting. Consistent with the writings of William James (1890) and subsequent theorists (Wheeler et al., 2007), these self-concepts exist at various levels of accessibility that are influenced by situational contexts. Most relevant to this dissertation, under the right conditions, the selves hearken to persuasive communication.

As with all things in the social sciences, however, the lofty conceptualizations of theory must eventually descend to grapple with the concreteness of operationalizations. On this rough terrain, the complexities of stimuli selection, stimuli presentation, information processing, and measurement are easily capable of overwhelming the original ideas. At the same time, the process of dealing with these complexities may also reveal insights of theoretical or methodological value.

In terms of theory, the basic claim of this dissertation – that self view accessibility mediates the effect of communication on behavior-relevant outcomes – was supported. Furthermore, the mediation was demonstrated in the presence of a competing potential mediator (marijuana inconsistency with responsibility), similar to findings in previous related work (Comello & Slater, accepted). Thus, a nonuser self view appears to trump beliefs or other object-category linkages as a guide to behavior. This finding may help explain why ads that are effective at moving beliefs about marijuana in a direction favorable to prevention in copy-tests can nevertheless fail at influencing behavior in the
field, as was the case with early ONDCP efforts. Likewise, it allows for the possibility that ads that do not substantially change beliefs about marijuana in a direction presumably favorable to prevention can nonetheless have a salutary effect.

Study 2 findings regarding indirect effects through nonuser self view are interesting to consider in light of Study 1 findings on indirect effects through emotion but not through attitude toward ad. The results invite questions about the possible connections between identity accessibility and emotion and their joint effect in influencing behavior. Stryker (2004) has proposed that more salient identities have more intense affect attached to them, and further, that intense positive affect will result in behavior that confirms the identity. To investigate these possibilities, future studies could link nonuse to emotion as a feature to be varied across conditions and examine impact on self view. Measures of emotional response could also be included along with measures of self view accessibility.

This work represents an advance on previous research that has explored hypotheses about mediation only on a post-hoc basis (Comello & Slater, accepted). However, although the viability of the self view accessibility mechanism was supported in the main study, group differences were not in the expected directions. Pertaining equally to methodology, some of the explanations that have already been offered suggest that additional computational processes may have encumbered the reaction times of the most engaged participants in prevention-ad conditions; in contrast, the responses of
control condition participants were likely more spontaneous and based on retrieval of previously formed attitudes. Prior research using converging operations (verbal protocols and response latencies) has shown that response latency methods can reliably trace retrieval versus computational processes (Camp, Lachman, & Lachman, 1980; noted in Stayman & Kardes, 1992). It is therefore highly likely that the reaction-time measures in Study 2 displayed similar sensitivity.

It should be noted that the same sensitivity to cognitive effort is also at the root of the argument that reaction-time measures are relatively resistant to the pressures of social desirability. In other words, while reaction-time measures allow for socially desirable responding on the explicit level, they nevertheless indicate (via reaction speed) the cognitive effort required to make such a response on the implicit level; in this sense, the measure gets around the ceiling or floor effects that might be observed when using deliberative measures.

Given multiple potential triggers for cognitive effort, what then can be concluded about the benefits of reaction-time measures in substance-use prevention contexts? It is suggested that they are useful as indicators of nonuser self-concept accessibility and other substance-related constructs only when there are no other pressing reasons to engage in deliberative thought. When there are reasons to engage in deliberation (for example, in the case of exposure to ads that induce guilt, or if a situational context induces higher need for accuracy), longer reaction times may not necessarily indicate lower accessibility
of the construct but rather cognitive elaboration around the construct. Such elaboration can work to the advantage of prevention efforts in some ways, in that compelling ads may encourage young people to discuss the ads with friends which could reinforce norms of non-use. However, elaboration may thwart prevention efforts if discussions take place with peers who are risk oriented (David, Cappella, & Fishbein, 2006), or if the elaboration results in counterarguing (Rhodes, Roskos-Ewoldsen, Edison, & Bradford, 2008).

In terms of stimuli, the experience of selecting ads from a population to serve as category exemplars raised questions about the appropriate conceptualization of theme as an ad feature to be manipulated or varied between conditions, while attempting to keep other features constant. It is suggested that theme is a higher-order structure that organizes multiple lower-order features such as emotional tone, narrative content, interactions of characters, visuals, and other features. If this is the case, the selection of one theme over another is almost by definition the acceptance of potential confounds; at the same time, the alternative of manipulating exemplars may result in replications that are just trivially different or that do not represent the type of message that would be produced in real-world situations.

A similar dilemma exists in news framing research (Shah, McLeod, Gotlieb, & Lee, 2009), with advocates of precision approaches that treat frames as objects to be manipulated, and advocates of realism-driven approaches that conceptualize frames as
“qualitatively different alternatives for how to assemble events, facts, and other information into a news story.” Shah and colleagues have developed typologies of research approaches that combine the precision/realism distinction, as well as whether the frame is issue-specific or transcendent. It is suggested that developing a similar typology for use in persuasive health message research may provide researchers with more ready language for articulating the questions they are trying to address, and with more awareness of the limitations of any approach.

In terms of real-world implications, the work presented here made use of ONDCP video ads from My Anti-Drug and Above the Influence campaigns and was able to identify differences between the two, based on the selection of ads for the pretest (Study 1). Although the Above the Influence campaign elicited more positive affect, the campaign did not increase perceptions of marijuana risk relative to baseline as did the My Anti-Drug campaign (albeit at marginally significant levels). There was some evidence consistent with lowered risk perceptions in Study 2, in which exposure to ads from the autonomy condition (the theme most emblematic of the Above the Influence campaign) was associated with less unwillingness to smoke a joint at a party with friends, relative to control. However, as already stated, it is likely that the study conditions may have muddied the measure of willingness by motivating participants to engage in cognitive reflection. In general, though, the autonomy condition did not differ greatly from control. Perhaps messages that combined autonomy and achievement would have served as a
more effective theme, given that autonomy and achievement are often spoken about in tandem, and also given new evidence that substance-related autonomy and aspiration beliefs may be accounted for by a higher-order factor in the prediction of behavior (Henry, Shtivelband, Comello, & Slater, 2010).

More broadly and speculatively, it is suggested that even if the ads tested here did not in some cases change accessibility of self and marijuana-related views, there is the possibility that exposure could nevertheless change the relationship between a self concept or identity and a behavior-relevant outcome. This would be a case of moderation of the effects of identity by exposure. Put another way, they could interact and serve as moderators of each other in influencing behavior. It may also be possible in the same model for identity to serve as both moderator and mediator: a construct that varies both in accessibility as a function of exposure and its weight as a predictor of a behavior. This conceptualization was developed during my candidacy based on activated-self models (James, 1890; Wheeler et al., 2007) and work on values framing (Nelson, Oxley, & Clawson, 2007) and media priming (Fishbein & Yzer, 2003). The extent to which identity plays these dual roles based on the operationalizations used in the current work is a topic for future study.

In sum, this work explored theory-driven mechanisms related to identity activation in the context of experimental testing of ONDCP marijuana-prevention video PSAs. Despite unexpected results in some areas, the data support a key role of identity as
a mediator of communication effects that offers more explanatory value than more commonly studied mediators. The accumulating evidence from this and prior work demonstrate the importance of continued research in this area.
References


Goodall, C. E. (2009). *Automated attitude activation: Studies on processing and effects of alcohol advertisements and public service announcements.* Dissertation, Graduate School of The Ohio State University, Columbus, OH.


Appendix: Tables & Sample MODPROBE Output
<table>
<thead>
<tr>
<th>ONDCP Ads</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Anti-Drug Campaign</td>
<td></td>
</tr>
<tr>
<td>Concert</td>
<td>Boys at concert get busted for smoking pot in the restroom.</td>
</tr>
<tr>
<td>Drive-thru</td>
<td>Boys going through drive-thru in car are high; driver accidentally hits child on bike.</td>
</tr>
<tr>
<td>Couple</td>
<td>Girl who is high at party is unable to ward off advances of male.</td>
</tr>
<tr>
<td>4-cigarettes</td>
<td>Boy rolls contents of four cigarettes into a large joint.</td>
</tr>
<tr>
<td>Memorial</td>
<td>Boy remembers younger brother, whom he killed in auto accident while he was driving under influence.</td>
</tr>
<tr>
<td>Wallet</td>
<td>Boy talks disparagingly about older brother who smokes pot and hasn’t accomplished much in life.</td>
</tr>
<tr>
<td>Championship</td>
<td>Boy gets kicked off basketball team for smoking pot and blows team’s chance at championship.</td>
</tr>
<tr>
<td>Shacoya</td>
<td>Girl talks about her aspirations and how she refuses to succumb to friends’ influence to smoke pot.</td>
</tr>
</tbody>
</table>

Table 1: Inventory and Descriptions of ONDCP Ads (Study 1)
Table 1 - Continued

*Above the Influence*

<table>
<thead>
<tr>
<th>Transformation</th>
<th>Boy stands in middle of room while people do various things to him. He finally tells them to stop and he walks away.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smushed</td>
<td>Girl who appears flattened talks about how she got that way by giving in to pressure.</td>
</tr>
<tr>
<td>Whatever</td>
<td>Boy driving car talks about how he lives life for his friends, who are always high.</td>
</tr>
<tr>
<td>Pete’s couch</td>
<td>Boy describes smoking pot as the most boring and safe activity in the world and says he prefers to take his chances.</td>
</tr>
<tr>
<td>Conversation</td>
<td>Boy feels regret for getting high at party and not taking someone home as promised.</td>
</tr>
<tr>
<td>Shadows</td>
<td>Boy shooting hoops goes off to accept a joint, leaving his shadow sitting dejected on the court.</td>
</tr>
<tr>
<td>Shoulders</td>
<td>Boy gets offered joint at party. He hears voices with arguments for and against accepting, but realizes his voice is only one that matters.</td>
</tr>
<tr>
<td>T-shirts</td>
<td>Boy wearing many T-shirts removes them until he is left with one that reads “Above the Influence.”</td>
</tr>
</tbody>
</table>
### Table 2. Evaluations of ONDCP ads used (Study 1)

<table>
<thead>
<tr>
<th>Ads</th>
<th>Primary value categorization</th>
<th>Secondary categorization</th>
<th>Attitude toward ad</th>
<th>Emotional tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Anti-Drug Campaign</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concert</td>
<td>Trouble (100%)</td>
<td></td>
<td>3.51 (1.70)</td>
<td>-0.85 (1.92)</td>
</tr>
<tr>
<td>Drive-thru</td>
<td>Harm others (100%)</td>
<td></td>
<td>2.69 (1.31)</td>
<td>-3.60 (2.23)*</td>
</tr>
<tr>
<td>Couple</td>
<td>Autonomy (63%)</td>
<td>Trouble (52%)</td>
<td>3.18 (1.76)</td>
<td>-3.44 (1.98)*</td>
</tr>
<tr>
<td>4-cigarettes</td>
<td>Ruin health (94%)</td>
<td></td>
<td>3.40 (1.18)*</td>
<td>-1.53 (2.01)</td>
</tr>
<tr>
<td>Memorial</td>
<td>Harm others (98%)</td>
<td></td>
<td>2.25 (1.24)*</td>
<td>-3.29 (1.87)*</td>
</tr>
<tr>
<td>Wallet</td>
<td>Achieve (90%)</td>
<td></td>
<td>2.89 (1.36)</td>
<td>-1.38 (2.23)</td>
</tr>
<tr>
<td>Championship</td>
<td>Responsible (96%)</td>
<td></td>
<td>3.27 (1.73)</td>
<td>-1.18 (1.77)</td>
</tr>
<tr>
<td>Shacoya</td>
<td>Achieve (71%)</td>
<td>Autonomy (67%)</td>
<td>2.88 (1.50)</td>
<td>1.63 (2.00)*</td>
</tr>
</tbody>
</table>

*Continued*
Table 2 - Continued

*Above the Influence Campaign*

<table>
<thead>
<tr>
<th></th>
<th>Autonomy (Primary)</th>
<th>Achieve (Secondary)</th>
<th>Autonomy (Secondary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation</td>
<td>2.49 (1.21)</td>
<td>-0.67 (1.42)</td>
<td></td>
</tr>
<tr>
<td>Smushed</td>
<td>3.77 (1.53)</td>
<td>-1.07 (1.75)</td>
<td></td>
</tr>
<tr>
<td>Whatever</td>
<td>2.73 (1.38)</td>
<td>0.24 (2.02)</td>
<td></td>
</tr>
<tr>
<td>Pete’s couch</td>
<td>2.38 (1.36)</td>
<td>1.02 (2.08)</td>
<td></td>
</tr>
<tr>
<td>Conversation</td>
<td>2.69 (1.13)</td>
<td>-1.78 (1.60)</td>
<td></td>
</tr>
<tr>
<td>Shadows</td>
<td>3.71 (1.06)</td>
<td>-0.76 (1.44)</td>
<td></td>
</tr>
<tr>
<td>Shoulders</td>
<td>3.02 (1.49)</td>
<td>0.69 (1.69)</td>
<td></td>
</tr>
<tr>
<td>T-shirts</td>
<td>3.52 (1.50)</td>
<td>0.53 (1.75)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Standard deviations in parentheses. Asterisks denote significant differences (p<.05) from *grand means* of attitude toward ad (3.02, SD = .97) and emotional tone (-.97, SD = 1.41). Lower scores on attitude toward ad indicate more favorable attitudes. Emotional tone is the difference between positive and negative emotions evoked by ad; negative scores therefore indicate a relatively greater amount of negative emotion. Primary categorization is the value with the highest percentage of participants agreeing that ad message is congruent with that value. Secondary categorization is shown above only if more than half of participants classified ad as congruent with a value other than the primary. Highlighted ads are those selected for inclusion in Study 2.
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Raw mean reaction times</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(SE in parentheses)</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Self-view as nonuser</td>
<td>808.23</td>
</tr>
<tr>
<td></td>
<td>(30.58)</td>
</tr>
<tr>
<td></td>
<td>n = 40</td>
</tr>
<tr>
<td>Inconsistency of marijuana with</td>
<td>704.06</td>
</tr>
<tr>
<td>responsibility</td>
<td>(39.02)</td>
</tr>
<tr>
<td></td>
<td>n = 41</td>
</tr>
<tr>
<td>Unwillingness to smoke joint at party</td>
<td>1575.97</td>
</tr>
<tr>
<td></td>
<td>(144.64)</td>
</tr>
<tr>
<td></td>
<td>n = 34</td>
</tr>
</tbody>
</table>

Table 3. Raw Mean Reaction Times by Condition (Study 2)

Note. 1=autonomy support theme, 2=responsibility support theme, 3=control. Reaction times are in milliseconds. Means were adjusted for baseline quickness to respond, age, and past-month use. Raw data are reported in table; transformed data were used in analysis.
**Sample output from MODPROBE analysis using Johnson-Neyman method**

**Note.** Outcome is nonuser self view. Focal predictor is exposure to responsibility condition (“B” in output; 1=exposed, 0=not). Moderator is importance of benevolence/responsibility (“Bindex”); lower values indicate greater importance.

Johnson-Neyman output was inspected despite nonsignificance of interaction. At values of moderator between 1 and 2.2548, effect of exposure is significant (p ≤ .05).