Experiments as Reforms

Persuasion in the Nation's Service

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With one of his most important and influential papers, Donald Campbell launched a social and scientific movement that would prove to have major ramifications for American society. His "Reforms as Experiments" set powerful if nascent psychological forces in motion, forces that involved the integration of strong investigative methods with large-scale social interventions intended to enrich the lives of the citizenry (Campbell, 1969). These forces had been part of the topology of psychology for many years (Lewin et al., 1945; Lewin, Heider, & Heider, 1936), but Reforms renewed and reinvigorated the challenge to social psychology to make good on its promise as a force for progressive social change by daring its practitioners to evaluate the worth of socially relevant interventions carried out in its name, and in response to its sometimes extravagant claims. Campbell's vision, in conjunction with the somewhat more philosophically and qualitatively oriented version of Michael Scriven (1991, 1997, 2003), marked a beginning of a new field, evaluation research, which is focused on the empirical, scientific, controlled assessment of large- (and small-) scale social interventions. In close collaboration with social psychologists, the pioneers in this new endeavor, empirically oriented investigators from psychology and allied branches of applied research, promised a real return on the investments civil society had made in nurturing the emerging social sciences since their various inceptions (Bickman, 2000).

The integration of the complementary epistemological orientations of Campbell and Scriven has resulted in a movement with the potential to enrich and refine our efforts as responsible citizens and social scientists. This was a necessary move on the part of social psychology, one which today's practitioners would do well to emulate more assiduously. As Mcguire (2003) observed, "a Mandarin stance of science for science's sake, however claimed by the high-table elite, would lose support from other segments of society, including funding agencies" (p. 135). We have seen this prediction come to pass.

The success of the integration is evident. Campbell and Scriven's creative duet, a ground-breaking call to arms, inspired a response in which the numbers alone speak for themselves. The growth of evaluation science is as impressive as it is encouraging. The American Evaluation Association in the US, for example, only one of many such organizations focused on the evaluation of large and small social programs, now boasts more than 5000 members from 60 countries. Almost all developed nations, and some undeveloped ones as well, now lay claim to national evaluation associations whose central aim is the same – the betterment of society, by evaluating the results of interventions carried out to enhance the well being of its nationals.

The Other Side of Reforms

Successful well beyond his expectations, it would be a mistake to read Campbell's Reforms solely as a call for a more comprehensive and responsible orientation toward the systematic assessment of our ideas when applied to the solution of vexing social issues in real world contexts. It was that, of course, but it was much more. Campbell's approach was, characteristically, complex. Not only were the denizens of this brave new experimental world to assess and evaluate the outcomes of their theory-based

brainstorms, they also were responsible for creating and refining in laboratory and field

research contexts the very theories that formed the logical bases for the interventions in

the first place. Our responsibility, in other words, was not only to evaluate the theories

chosen to undergird the interventions mounted on behalf of society, but also to create

those theories and to see that they were used properly in developing and adjusting the

interventions that ultimately were put into place (Crano & Brewer, 2002; Shadish, Cook,

& Campbell, 2002; Shadish, Cook, & Leviton, 1991). This role requires a far more

activist orientation than that of the evaluator, which in the worst case necessitates little

more than a reflexive orientation that is fixated continually on the need to clean up

others' action research messes (Cook, Chelimsky, & Shadish, 1997; Cook, Shadish, &

Reichardt, 1987). This was not Campbell's vision. Rather, he saw the social scientist as a

kind of benign democratic philosopher king, in which stringent methodological skills

merged with hard-won substantive social psychological knowledge to produce outcomes

whose consequences redounded to the benefit of the common person. Our responsibility,

in other words, was not merely to judge the adequacy of our interventions, but to create

interventions that were based on our theories, and which had a reasonable chance of

success.

On this score we have not fared well, not because of a lack of effort or good will,

but rather from an undisciplined application of ideas based more on self-perceptions of

infallibility than evidence based knowledge. One of the areas of application in which

such failures are especially apparent is our application of the knowledge amassed over

the years in our studies of persuasion, the focus of this 12th Sydney Symposium. Work

on persuasion stands as one of the hallmarks of social psychology (McGuire, 1986;

Prislin & Crano, 2008), as it has for many years: More than 70 years ago, Allport (1935)

designated attitude as social psychology's "most distinctive and indispensible concept"

(p. 784). The same may be said today. While we could trace our heritage to Aristotle

(1991, 1999), whose *Rhetoric* still stands as a testament to his genius, I prefer to locate

the scientific beginnings of the science of persuasion in the more prosaic confines of New

Haven, Connecticut. It was here at Yale University that the great Carl Hovland set up

shop after the Second World War. There he gathered the best attitude researchers of his

time, whose contributions still guide much of what we do today in the study of

persuasion. Shepard has listed some of the many researchers involved in the Yale

program (see

http://www.nap.edu/readingroom.php?book=biomems&page=chovland.html.). Brief

consideration of this list reveals that these researchers were, or were to become, the

leading lights in attitude research; they included, among others, Abelson, Anderson, Jack

Brehm, Brock, Enid Campbell, Arthur Cohen, Feierabend, Freedman, Janis, Kelley,

Kelman, Howard Leventhal, Luchins, Lumsdaine, William McGuire, Norman Miller,

Rabbie, David Sears, Muzafer Sherif, and Zimbardo. It is easily arguable that much of

what we do in persuasion today is shaped by what these men and women did in Yale's

Communication and Attitude Change Program more than a half century ago (McGuire,

1996).

     This is not to suggest that all of Hovland and company's findings have stood the

test of time, but rather that the influence of their labors remains. Most important was the

way they went about the work. In one of the key monographs to emerge from the Yale

program, Hovland and colleagues (1953) expressed their commitment, and that of the

Program, to theory-guided, experimental, laboratory based research in studying basic persuasion processes. Their insistence on the primacy of theory as a guide, bolstered by a strict adherence to the logic of the experimental method, is a testament to the authors' prescience and stands in stark contrast to that which is apparent in many of our largest and most costly social intervention programs today. At the same time, the application of their work to contemporary problems was clearly evident in their choice of topics of study. Hovland was not content to research interesting phenomena for their own sake – the phenomena had to articulate with issues of importance, and this probably was a carryover from his early (pre-Yale) work during World War II on the creation and assessment of propaganda on civilian and military behavior (Hovland, Lumsdaine, & Sheffield, 1949).

The War on Drugs

The adherence to theory in guiding research, especially applied research, is not evident in many of our major social interventions. The National Youth Anti-Drug Media Campaign (NYAMC) provides a recent example of a program that could have had a major effect on adolescent drug involvement, but it was doomed perhaps from the start because of limitations of theory and design. This chapter will focus on features of this massive mass-mediated intervention, as it provides fertile ground for exposition of proper and improper persuasion techniques, of what was and what might have been. To do this, a brief recapitulation of this program will prove useful in illustrating the utility of developing a generalized framework for persuasion in applied contexts, the central goal of this chapter.

Some History

The NYAMC was initiated in 1997 during the Presidency of Bill Clinton, who authorized its launch with funds from the Office of National Drug Control Policy, an office funded out of the White House. The NYAMC was to be the largest drug prevention program in the history of the US. More than $2 billion was expended over the first five years of its life (funding is ongoing, but in reduced and modified form – a mere $100 million was budgeted in 2006, but to paraphrase Everett Dirksen (1998), "A million here, a million there, pretty soon you're talking real money."). The NYAMC was rushed to the field in response to a reversal of the secular trend that had seen a steady and continuous decline in adolescent drug use, principally marijuana and inhalants. When this trend inverted, the program was conceived to encourage young adolescents' return to the straight and narrow. The three enunciated goals of the campaign were to educate and thereby enable America's youth to reject illicit drugs, to deter adolescents' drug initiation (especially marijuana and inhalants), and to persuade occasional users to bring their dalliances to an end.

These are admirable aims, but the devil is in the details, and the massive multi-billion dollar effort, mounted with the best of intentions and goals, was star crossed from the very start. The thematic emphases of the program shifted erratically over the course of the anti-drug campaign. First focused on youth 11-13 years of age, to deter drug initiation, the Campaign's emphasis shifted in 2002 to 14-16 year olds in response to data indicating that the most precipitous increases in teen drug use occurred in this period. At this point, perhaps too late (Tormala, 2008), ads were tested somewhat more carefully before being fielded. In addition, more emphasis was laid on prevention of marijuana use, rather than drug use in general. In 2003, the majority (60%) of funding was directed

toward youth, the remainder to adults, a direct reversal of earlier proportions. Later

changes accompanied the appointment of a new drug czar, including a very unsuccessful

attempt to link marijuana with terrorism. These ads disappeared rather quickly.

In addition to hampering the "branding" of the campaign, the erratic pattern of

changes in theme and focus suggests that the NYAMC was brought to the field

prematurely, an impression reinforced by a consideration of the fundamental design flaws

that defined the fundamental fabric of the program (Crano, 2002). For example, the

NYAMC failed to make use of any baseline measures, rendering impossible the

assessment of change. The program also did not employ an untreated control or even a

comparison group; the youth of the entire country were to be served. In combination,

these design decisions, based more on temporal constraints and political expediency than

scientific logic, made it extremely difficult to pinpoint the effects of the various media

and messages employed on adolescent drug use despite the $50 million allocated for

evaluation of program effects.

Even worse than the design flaws was the effective lack of operational theory that

was applied in developing the media messages, which were the heart of the prevention

program. This is not to say that the program was devoid of theory – the NYAMC media

interventions were loosely structured on the back of Fishbein and colleagues' (2002)

Integrated Model of Behavior Change, which incorporates important factors from the

Health Belief Model (Becker, 1974; Janz & Becker, 1984), Social Cognitive Theory

(Bandura, 1986), and the Theory of Reasoned Action (Ajzen & Fishbein, 2005; Fishbein

& Ajzen, 1975). All of these theories have proved their mettle in applied prevention

research, and their combination promises to prove useful in future work. The integrative

model holds that attitudes, norms, and perceived (self-) efficacy are critical variables that determine the behavioral outcomes of persuasion (Fishbein et al., 2002). The model is reasonable, grounded in considerable research, and well worth serious consideration -- and it has performed well in smaller scale research (Rhodes, Stein, Fishbein, Goldstein, & Rotheram-Borus, 2007; Yzer et al., 2004; Zhao et al., 2006). However, in the NYAMC, the theory was honored more in the breach than in practice. Operationally, it played a minor role in the actual development of the messages that formed the heart of the intervention. This failure of translation from theory to application was critical. It laid the foundation for the intervention's ultimate failure. I believe the failure can be traced back to a fundamental misunderstanding or, better yet, neglect of a reasonable consideration of the features that are inherent in any persuasive context, and which must be attended to if we are to stand a chance of effecting attitude change.

Some Procedures and Results

Except for its scale, the conduct of the NYAMC was relatively straightforward. Anti-drug messages were designed, pro bono, by some of the country's best marketing firms. Air time and ad space was bought on a 50-50 cost sharing basis with media outlets (thus effectively doubling the reach of the already massive public appropriations), and the ads were delivered to an anxiously awaiting public through a variety of media. Every year for four years, a large scale evaluation was conducted on a panel of adolescents (9-18 years of age) who had been randomly sampled from the population at large, thus allowing generalization of results to the nation's youth (for details, see Crano, Siegel, Alvaro, Lac, & Hemovich, 2008; Orwin et al., 2006). The evaluation data were archived

in the National Survey of Parents and Youth (NSPY), the primary tool used in the evaluation of the program's effects.

The evaluation could not use a standard experimental format because of the design flaws so readily evident in the development of the program. Instead (see http://www.nida.nih.gov/despr/Westat/), program evaluators adopted a dose response approach, which associated reported variations in ad exposure with subsequent drug attitudes, intentions, and use across the 4 yearly measurement rounds. The evaluation was a four-year longitudinal panel design with three overlapping cohorts. The representative sample of the nation's youth ages 9-18 years ranged from 8117 to 5126 respondents in Years 1-4, respectively. Follow-up response rates after the first interview were remarkably high, ranging from 86%-93%; respondents "aged-out" of the design when they reached 19 years of age (see Hornik, Jacobsohn, Orwin, Piesse, & Kalton, 2008 and http://nida.nih.gov/DESPR/Westat/NSPY2004Report/Vol1/Report.pdf.).

Analyses revealed that at least on one score, the NYAMC was quite successful: more than 75% of the youth surveyed reported being exposed at least weekly to a NYAMC-sponsored anti-drug message, over four years, through the various media channels used. This level of exposure is rarely reached in marketing programs, and to my knowledge, never for this extended period of time, but then, most media blitzes are not budgeted in the billions of dollars either. This result was achieved by means of blanket coverage of almost all known media: among other outlets the anti-drug ads were placed on television, radio, billboards, transit ads, bus shelters, in magazines and movie theatres, video rentals, the Internet, and Channel One broadcasts in schools. Coverage is perhaps a necessary condition for success, but as we have learned, it is not sufficient. The more

critical issue is whether or not the ads were persuasive, and on this score, the data were considerably less accommodating.

Analyses of the panel data (see http://nida.nih.gov/despr/westat/ and https://www.nspycenter.com/default.asp) not only suggested that the ads did not achieve their goal to reduce and prevent drug use among the youth of the nation, but in fact, in some instances, they appeared to do more harm than good. Hornik et al. (2008), for example, found that respondents' intentions to avoid marijuana were negatively associated with exposure to the campaign's anti-drug ads between the first and second yearly rounds of the panel. Further, perceived anti-marijuana social norms appeared to be negatively affected by ad exposure on each successive measurement round. Worse yet, respondents' intentions to use marijuana were significantly associated with ad exposure over the final two years of the massive ad campaign. Put succinctly, the more that youth were exposed to the NYAMC anti-drug ads, the less they intended to avoid marijuana, the more they thought their peers used marijuana, and the stronger was their intention to use it themselves! It is probably for these reasons that the US Government Accountability Office (2006) recommended that the program be terminated. To date, this advice has been ignored.

Where Did It Go Wrong?

It would be easy to throw stones in reaction to the outcome of this massive project. How did it happen? Who is responsible for this enormous waste of resources and opportunity? There are plenty of targets to go around, and no small supply of rocks. To build the case for a new way of approaching mediated interventions, we might consider some of the features of this program that clearly failed (e.g., Why did the scientific

oversight panel not do a better job? Why did the ad agencies not listen to the oversight panel? Why did the project evaluators keep presenting negative data -- the "kill the messenger response?" Etc.). Rather than lay blame, it is my plan to propose a general framework for media-based persuasion whose application in future interventions will help ensure that the unfortunate results of the NYAMC are less likely to recur. Before doing so, however, we must reflect on one of the most significant reactions to the negative outcome of the intervention, namely the view that the mass media are ill equipped to serve as delivery vehicles for critical social interventions. Are the mass media up to the task? In light of the many mass mediated studies that have failed to deliver (e.g., see Atkin, 2004; Brecher, 1972), the question is reasonable, but its logical implication is contrary to the many social intervention studies of this type that have succeeded (Crano & Burgoon, 2002; Derzon & Lipsey, 2002; Flay & Sobel, 1983). The mass media can deliver successful interventions. They have done so in the past, they just did not do so this time. It was not the media that failed, it was the message.

Clearly the mass media have the inherent capacity to deliver messages that persuade. If this were not so, then the marketing programs of many of our major companies, which spend billions on advertizing every year, must be sadly off base. If we accept the premise that the mass media can deliver, then the culprits most likely responsible for the failure of the NYAMC were the messages themselves. Why did they fail to persuade despite the barrage of copy that ensured that for four years, more than three quarters of the nation's youth were exposed weekly to at least one anti-drug message? Obviously, a failure of reach was not the problem. A review of the overall program leads to three inescapable conclusions: (a) the messages themselves were not

well wrought, (b) they were not coordinated in such a way as to lead to a cumulative

effect, and (c) they did not target the audience that they were designed to motivate.

Targeting

Let us consider the last point first. In marketing research, there is relatively

widespread consensus that targeting ads to those most in need of them, or most likely to

use or be swayed by them, is clearly indicated when expensive mass media are used as

the delivery vehicle for persuasive messaging (Donohew, Lorch, & Palmgreen, 1991;

Noar, Zimmerman, Palmgreen, Lustria, & Horosewski, 2006; Selnow & Crano, 1987).

Indeed, some communication scientists have even called for the use of tailored

approaches, in which messages specifically created for *individual receivers* are produced

and delivered (Rimal & Flora, 1997; Rimer & Kreuter, 2006; Suggs, 2006; Updegraff,

Sherman, Luyster, & Mann, 2007). With today's technology, the capability to create

messages that capitalize on each receiver's individual proclivities, needs, and personality

is well within reach. The NYAMC was designed as a targeted campaign, but the targeting

factor was unduly gross, and seemed to change from year to year with the receipt of new

data. As such, the advantages of targeting were seriously diluted. Even so, some of the

campaign's targeting was well done. In some cases, media outlets that appealed to

specific racial or ethnic groups were employed, and messages deployed accordingly.

Again, however, a lack of quality messages attenuated these potentially helpful effects.

Coordination and accumulative effects

The lack of cumulative force must be laid at the feet of the campaign organizers,

whose persuasive emphases seem to have shifted from month to month, and the

Partnership for a Drug Free America, the organization responsible for recruiting the

marketers who created the ads that were aired. A more disciplined focus on what was to be aired was essential. The ads that formed the heart of the campaign were not integrated in a coordinated campaign. This was, perhaps, predestined, because the Partnership in seeking the best marketing firms in the country to contribute their services to this vital project necessarily asked many different firms for their free assistance, and many firms responded altruistically. However, there is no reason to assume that they knew what the other contributing firms were doing. As such, they could not coordinate efforts, and the impact of the campaign was not likely to cumulate, and it did not. Moving from one copy producer to another almost guaranteed that the Campaign's focus would be lost, and this was responsible for the lack of cumulative effect of the NYAMC intervention. The fact that the ads were developed (but not produced) pro bono is somewhat beside the point. If an ad is developed for free, but does not work, it is worth less than the price of its development.

This failure illustrates two underlying working assumptions on which the messaging strategy was based, and which assuredly are incorrect (Crano & Prislin, 2006; Prislin & Crano, 2008). The first of these is that a single message can do the trick – that an accumulation of effects is not necessary. This might be true in the case of a message of exceptional power that is attacking an issue on which the receiver is not extremely self-interested, but this is not the case when discussing marijuana and inhalants with many (but not all) adolescents. The somewhat paradoxical complementary position adopted implicitly by the campaign is that it does not matter what the message contains, or how good the message is; rather, exposure is all important. This position represents a misreading of years of persuasion research. To be sure, frequency of exposure is

associated with enhanced evaluation (Winkielman & Cacioppo, 2001; Zajonc, 1968), but the effects of exposure are attenuated when attention is focused on the frequently occurring stimuli. Mere exposure has its greatest effects when the exposure is incidental, and the stimulus materials are meaningless. With meaningful stimulus material, many other considerations come into play, including the strength of the message (Cacioppo & Petty, 1989). It also is true that overexposure can seriously reduce an ad's effectiveness (Appel, 1971). In fact, the two underlying assumptions that guided the central messaging strategy led to a neglect of critical persuasive factors, and an overemphasis on much less important features.

What Might Have Been Done to Improve Outcomes?

Targeting and Tailoring

Targeting specific subgroups with ads and via media that were maximally accessible was done well by the Campaign. However, more could and should have been done. In addition to targeting, it should be apparent that message effects will differ as a function of the usage status of the receiver (Crano, Gilbert, Alvaro, & Siegel, 2008). This proposition is reinforced in our research on marijuana and inhalant users, using data from the NSPY, the nationally representative sample of youth who participated in the evaluation of the NYAMC. In this analysis, we categorized adolescent respondents into user, vulnerable nonuser, or resolute nonuser groups (Crano, Siegel et al., 2008). Resolute nonusers were defined as adolescents who had never used marijuana, and were adamant that they would never do so. As shown in Figure 1, their progression to marijuana usage was retarded relative to that of vulnerable group, who also had never used at the time of the first measure, but who, unlike their resolute peers, were not absolutely insistent that

they would remain abstinent. The apparently minor variation on a single item allowed prediction of very large differences in marijuana usage over the four years of the NSPY.

[Insert Figure 1 about here]

Allied research supports these results. It indicates that vulnerable and resolute nonuser groups respond very differently to different messaging formats, to strong or weak threats, to different message sources, to social vs. physical threats, and to misdirection or forewarning of persuasive intent (Crano, Siegel, Alvaro, & Patel, 2007; Quinn & Wood, 2004; Ramirez et al., 2004).

Accumulation

The solution to the lack of accumulation is relatively straightforward. Ad producers must know not only the general aims of the campaign, but what all the other ad developers on the project are doing, or have done. If a single marketing group is used to produce all ad copy, a loss of accumulative effect is less likely, because the ads' originator presumably would maintain continuity of approach. This continuity is the reason that many advertisers seek to establish a brand. Maintaining a consistent brand helps ensure that the effects of earlier advertizing efforts will accumulate (Miller & Muir, 2004). Even if a solitary marketing company were used in the NYAMC, however, the factors theoretically responsible for the success (or failure) of prior ads must be considered if effects are to accumulate. The lack of this general understanding, of a broad vision, or better yet, of a theory of persuasive effects, was the root of the Campaign's failure. While there are many ways to persuade, the underlying dynamics of persuasion must be attended to, and in this program they were not.

Messaging and the Dynamics of Attitude Modification

Attitude formation

In addition to targeting and a concern for branding and the accumulation of

effects, any campaign that seeks to modify receivers' attitudes and subsequent intentions

and behaviors must be based on a reasonable, well researched, and empirically supported

theory of attitude development or change. The differentiation between development and

change has been a feature of research on attitudes for many years (Johnson & Eagly,

1989), but it has not received the attention it deserves. Recent research on evaluative

conditioning (EC) promises to change this state of affairs (e.g., see Walther & Langer,

2008; Walther, Nagengast, & Trasselli, 2005). Work on EC indicates that attitudes

toward unfamiliar objects can be formed via mere association between the new object

and another object whose valence has been established. Thus, a consistent association of

a new politician with one who is nationally revered is expected to benefit the neophyte.

Extrapolating from this research to the marijuana prevention realm suggests that EC may

be used with young adolescents with no history of use, and no strong attitudes toward the

drug, to lessen the possibility of initiation. If no strong pro-marijuana attitudes exist, EC

may be used to fuel an avoidance reaction to the drug. The strength of these evaluatively

conditioned reactions remains to be seen (Petty & Krosnick, 1995), but at a minimum,

they should provide a useful buffer against the mindless acceptance of an offer to partake

in drug use, which we have found to be strongly related to initial drug usage. In other

words, under the appropriate conditions (e.g., when in a group of friends) merely being

offered a drug is sufficient to move many young adolescents from abstinence to initiation.

Conceivably, this susceptibility would be lessened if an evaluatively conditioned negative

response were attached to the drug.

Messaging and Attitude Change

Established beliefs are the focus of attention in attitude change contexts. Changing beliefs, rather than forming them, involves processes quite different from those encountered in EC. Although some argue that EC can affect established attitudes (Walther & Langer, 2008), by far the more common approach involves the use of meaningful communications to prompt message receivers to modify their beliefs. This message based orientation is a common feature of almost all the major persuasion models, from Hovland et al. (1953) to today's dual (Petty & Cacioppo, 1996; Petty, Cacioppo, & Goldman, 1981) and single process models (Kruglanski et al., 2003; Kruglanski & Thompson, 1999). All of these models share a common and easily accepted axiom, namely that people want to be correct in their beliefs and actions. Accordingly, they will attend to information that is presented to them, especially when the issue under consideration is of high personal relevance, or vested interest (Crano, 1995, 1997; Lehman & Crano, 2002). It is reasonable to assume that a communication that is contrary to the individual's established beliefs on a highly vested issue will be considered and contested. Two features of this expectation deserve emphasis. First, we are concerned with issues that matter to the receivers; second, we are dealing with counter-attitudinal communications, not messages that reinforce the individual's established beliefs. For too long, we have researched reactions to attitude change treatments aimed at attitudes of relatively little importance to the message receivers. Most theorists today argue that different cognitive routes to persuasion are traversed as a function of the extent to which the issue under contention concerns the receiver (e.g., Petty & Cacioppo, 1986).

The outcome of the contest between the advocated position proposed in the persuasive message and the target's established beliefs, which Hovland and colleagues (1953) termed counter-argumentation, will determine the success or failure of the persuasion attempt (see Petty, Tormala, & Rucker, 2004). In logic, a counterargument is an objection to an objection, and this meaning conveys the sense of Hovland and colleagues' use of the term quite well. The persuasive message must rebut a belief of the message receiver, who in turn is expected to try to rebut the rebuttal – if the issue is sufficiently involving to the receiver to justify the effort.

Over the years, we have developed many ways of enhancing the likelihood that the advocated position will prevail over the established belief. Presenting a message under distraction or cognitive load, linking it to a source of high credibility, reducing the apparent intent to persuade…the list of message enhancing catalysts that have been shown to improve a message's persuasive potential could be extended almost indefinitely, but rather than develop a catalogue of all known persuasiveness factors, let us focus more generally on the processes that must be involved in persuasion (McGuire, 1969). If a message is to persuade, it must, among other things, present cogent reasons that argue for its adoption. That is, in its initial rebuttal of the receiver's established beliefs, it must convey information that the receiver must consider seriously. We can manipulate the factors that affect the likelihood that the requisite consideration will occur, so the presented information will be elaborated open-mindedly, but the more basic requirement is that the material conveyed actually informs the receiver about the proper position to adopt. It is not enough merely to tell receivers they are wrong. The effective persuasive message will tell them why they are wrong and how they can get right. If the

message is devoid of this information, or if the information is generic and banal (e.g., "Just Say No"), then tactics designed to enhance message elaboration are largely irrelevant, as there will be little to elaborate upon. In short, the message must convey knowledge or information, and under ideal circumstances, advice about how to overcome a problem that has been identified. If it does not do so, we need not worry about how the information is best transmitted. Conveying knowledge is important for a number of reasons, not the least of which is the positive association between attitudes bolstered by knowledge and enhanced attitude strength (Crano & Prislin, 2006; Krosnick & Abelson, 1992; Wood, Rhodes, & Biek, 1995).

Fear. In many contexts that involve social marketing or prosocial messaging, fear-based communications are used to change attitudes and behaviors (Dillard & Anderson, 2004; Green & Witte, 2006; Ruiter, Abraham, & Kok, 2001). This tendency is related to the issues involved in social marketing, which often involve advice to avoid certain behaviors – don't use drugs, avoid fatty foods, don't smoke, and so on. Although use of fear appeals is common, there is considerable controversy regarding their utility, especially in applied mass mediated contexts (e.g., Hastings, Stead, & Webb, 2004). The controversy surrounding fear arousal is due to a somewhat myopic main effects view of how fear affects persuasion. The proper question is not whether or not fear appeals work, but rather on whom do they work, and under which circumstances. Fear arousing messages can prove very effective (e.g., see Green & Witte, 2006) if they are used properly, but they can backfire if the emotion aroused by the message interferes with the receiver's ability or motivation to process. Trying to scare a young adolescent about the dangers of inhalant abuse, for example, is ill-advised if the adolescent is an inhalant user.

If abstinent, the fear arousing message receiver might prove useful if the receiver is considering initiation; if the receiver is resolutely abstinent, the message probably will not hurt (but see Erceg-Hurn, 2008), but it represents a waste of scarce advertizing resources (Crano et al., 2007).

   Violating prior experience. Another messaging difficulty that arises particularly when using fear arousing messages – but which can occur with nonemotional appeals as well – has to do with communications that promise an outcome that the receiver on the basis of prior experience or logic finds incredible. Tormala and his colleagues have demonstrated that the very act of rejecting a persuasive message may strengthen the established attitude, and these iatrogenic responses are especially likely when the message originates from powerful or prestigious sources like the National Institute on Drug Abuse or, The Partnership for a Drug Free America (Petty, Brinol, Tormala, & Wegener, 2007; Tormala, 2008; Tormala, Clarkson, & Petty, 2006; Tormala & Petty, 2002, 2004). Prevention ads that promise extreme consequences are reasonable only if the extreme consequences are relatively immediate and their cause indisputable. If the promised consequences are exaggerated, however, the message (and its advice) will be rejected, and the established attitude will be bolstered. This is not what we want to do when creating a drug prevention campaign, but it appears exactly to be the outcome with the NYAMC and other campaigns that misused fear arousing messages that flew in the face of their audience's prior experience (Erceg-Hurn, 2008).

   Violating expectancies. A similar result occurs when a receiver's expectations regarding an outcome, formed on the basis of a media campaign, are violated. Skenderian and her colleagues found that respondents in the NSPY survey whose expectations

regarding the dire promised consequences of marijuana use were disconfirmed formed more positive attitudes toward the drug, and stronger intentions to use the drug. These effects were amplified if their changed expectations were based on prior experience (Skenderian, Siegel, Crano, Alvaro, & Lac, 2008). The utility of experience-based attitudes in predicting behavior has long been recognized (Fazio & Zanna, 1978a, 1978b; Fazio, Zanna, & Cooper, 1978; Glasman & Albarracin, 2006; Prislin, 1993). The added value of Skenderian et al. (2008) is the realization that experience coupled with rejection of a media-based expectation may result in behavior opposite to that recommended by the mediated information. This result counsels extreme caution when promising consequences that may not ensue. Adolescents who expect that marijuana usage will result in a loss of all friends will prove very difficult targets for persuasion if they learn that this dire outcome does not come to pass when they use the drug. Indeed, the disconfirmation of their expectations will lead to greater resistance to subsequent anti-marijuana communications and, even worse, stronger intentions to use the drug. It is conceivable that many of the iatrogenic effects found in the prevention literature arise because we have overpromised the (dire) consequences that will ensue from the receiver's not following our sage advice. If the receivers' prior experiences belie the advice, we not only have lost this battle, but have disadvantaged ourselves in future battles as well.

The obvious solution to the problem of overpromising is not to do so. The consequences of marijuana, inhalant, or other drug use are real and need not be exaggerated. Even when the consequences are real, if they are uncommon, their use is likely to backfire. The rational course is to promise honestly, but to promise outcomes

that are not easily falsifiable on the basis of incomplete information. That is, if marijuana affects ambition, it is not reasonable to promise adolescents that users will find themselves failing in school, unable to enroll in a selective university, and unable to find a good job. On the basis of their own experience, they will reject these promises. On the other hand, the assertion that the average wage of adolescent marijuana users as adults is considerably lower than those who abstained from the drug may prove believable, and would be difficult to falsify unambiguously. Messages of this type should be used. They do point out the harms associated with a drug, but they cannot easily be rejected on the basis of receivers' direct experiences. Media that pose the threat that anabolic steroid abuse shrinks men's testicles, reduces sperm count, causes infertility, baldness, and development of breasts would seem to fill the bill. For most young men, these outcomes are real, they are not desirable, and they are not readily falsifiable – the effects occur, but their manifestation takes time. This means that using extremely dire threats in media campaigns is not indicated, unless outcomes are immediately evident, unavoidable, terrible, and undeniably caused by the drug in question. Even in such cases, the evidence is not favorable. Erceg-Hurn's (2008) review of the Montana Meth campaign supplies a good example of the dangers of over-hysterical advertizing (see www.Montanameth.org.).

The Montana Meth Project is an anti-methamphetamine public service media campaign. Its anti-drug messages are sensational and highly emotive, and its producers have claimed major successes in deterring Montana's youth from engaging in meth use. The Program's claimed success had been widely trumpeted, and it has been adopted in a number of other states in the US. The problem with the claims of campaign success is

that upon close analysis, they do not hold up. After six months of exposure to the campaign, for example, Erceg-Hurn found a three-fold increase in the number of Montana teens who reported that meth use was not risky; they also were more likely to voice similar opinions regarding heroin and cocaine. Indeed, those who viewed the semi-ubiquitous ads were four times more likely to approve of regular meth use! Coupled with these findings was the result that fully half of the sample's teenagers felt the Montana Meth messages exaggerated the dangers involved with meth use. Whether or not they are correct is in some way beside the point. The fact that half the message receivers responded negatively to the messages suggests that the messaging approach is in dire need of revision, and reinforces the point that messages must be both credible and not easily falsified. It is not yet possible to say that the Montana Meth Project has done more harm than good, but the data certainly seem to point in that unhappy direction.

A Recipe for Media Campaigns based on Fundamental Theories of Attitude Structure and Change

A working model of the framework that might prove highly useful in structuring an anti-drug media campaign that has a reasonable chance of success, based on the past half-century of theorizing on attitude formation and attitude change, would integrate the various rants evident throughout this chapter. A model that integrates these earlier observations requires that we first decide upon the target audience. If we are designing an anti-drug media campaign, this means that we must recognize that messages addressed to users will be different from those directed to nonusers who are considering initiation, which in turn will differ from the messages designed to reinforce the beliefs and behaviors of resolute anti-drug nonusers who will receive our message.

How should the messages be constructed? We have learned the importance of needs analyses when mounting any type of social intervention. In the present case, the need for the intervention is understood, just as it is understood that such an analysis will have been performed in advance of any serious campaign planning. In addition to determining the need for a program, however, when designing the intervention we also should consider a preliminary analysis that is designed to assess the target population's understandings surrounding the issue at hand. Is the audience aware of the problem? Are there strong attitudes on the critical issue, or does ambivalence reign? Answers to these questions will suggest the choice of either an attitude formation or an attitude change strategy. In the case of ill formed beliefs, an evaluative conditioning approach may work well. Under the circumstances described, it will prove more efficient and will enjoy a higher probability of success than an attitude change strategy, which by definition assumes that the target audience possesses attitudes in need of changing.

If study of the likely target audience suggests the existence of relatively established beliefs about the drug in question, however, then an attitude change approach is indicated. The utility of the preliminary study is that it can, if thoughtfully designed, provide an atlas of the beliefs and allegiances that must be overcome if the program is to succeed. This information may even support a tailored message approach, in which messages tailored to any number of receiver characteristics may be developed. The preliminary study can allow for this level of precision, but it is costly. In either event, tailoring or targeting, it is foolhardy to assume that certain attitudes must be changed in the absence of information regarding their existence (Siegel, Alvaro, Patel, & Crano, in press). And it is equally foolhardy to mount a campaign that fails to confront beliefs

whose reversal might have a marked effect on attitudes that are the causal agents of the behavior we wish to modify.

The preliminary analysis is useful for yet another reason, which has to do with its potential to facilitate the evaluation of the ultimate intervention. The early field research will alert investigators to the problems that are most likely to be encountered, and this will allow them to plan accordingly. These plans, in turn, will facilitate the evaluation of program outcomes, an essential condition of any serious social intervention.

Once the target audience and the targeted beliefs are defined, the next order of business is the development of a persuasive campaign. This will involve developing a series of messages that have been designed in such a way that their effect builds upon earlier effects. These messages, to be delivered to the critical audience, should be identifiable as originating from a common source. This identification should proceed from the messages themselves, not merely the tagline that follows at the end of each message. Simply attaching a tagline does not establish the brand – the messages presented do.

The particular messages that will be developed will differ, depending on the function of the communication, but the "rules of engagement" are similar across message types. The information presented must be credible. Credibility will be enhanced as a result of the preliminary analyses, which helped identify the particular issues that are in most need of confronting. The messages should be fact-based, and they should contain arguments that challenge established beliefs and that show why the beliefs should be changed. If a problem behavior is involved, the message must show how the problem can be avoided or alleviated. This last point is especially important if the message makes use

of fear arousal. It is not sufficient merely to scare a message recipient about an object or a behavior; rather, some way of dealing with the threat must be provided if the message is to succeed (Green & Witte, 2006). Without efficacy information, fear arousal does not provide a clear path to the proper behavior, even in receivers who have been persuaded by the message and wish to modify their actions. This is why advice such as "Just Say No" or pictures of frying eggs that suggest "This is your brain on drugs" are not likely to affect behavior. For many young adolescents offered their first marijuana joint, for example, it is not clear how to just say no any more than it is to imagine the relevance of frying eggs to cognitive dysfunction.

In summary, the central guidance that must direct all media-based interventions is clear: the material presented must be credible, not easily falsifiable, and not inconsistent with prior experiences or behaviorally based expectations. And, it must contain clear directives to action.

Credible. In Petty and Cacioppo's (1986) terminology, we must create *strong* messages if we expect our media to have lasting effects on receivers' thoughts and eventual actions. Strong messages, which convey credible information, are supported by expert knowledge and data. If the validity of a position can be established unambiguously, it is difficult to defuse even if it is contrary to one's wishes.

Not easily falsifiable or inconsistent with prior experience/expectations. It is foolhardy to produce media that receivers know is incorrect on the basis of their own experiences, or that is easy to refute on the basis of simple observation. If a message promises a consequence that the target does not believe will transpire, it is not likely to persuade, and may render persuasion in the future even more difficult. There is a

tendency toward hyperbole in much of our media-based prevention. This is natural – we know what is helpful and harmful, and a bit of exaggeration may seem justified. Succumbing to this natural tendency opens the door to a host of problems, immediate and long term. The immediate problem is that the exaggerated warning contained in our message may prove easily falsifiable. "You say that smoking marijuana will affect my grades, but my friend John smokes all the time and he gets straight As." "You say that only 5% of my peers use inhalants – that's crazy. Almost everyone I know is a huffer." Responses such as these are the stuff of which message rejection is made. Even worse, these reactions portend enhanced resistance to future prevention messaging.

Clear directives. It is not sufficient to point to a danger to be avoided – if the message is to have the desired effect, appropriate ways to avoid the problem must be presented. This advice is standard when dealing with fear arousing appeals – providing ways of avoiding the threatened, emotionally laced outcome must be provided if the appeal is to succeed. The same advice obtains even when high fear arousal is not a part of the messaging strategy. It is not reasonable to assume that receivers will know instinctively how to avoid problems of drug avoidance or use. The preventive message must provide the answer, and if it does not, it is much less likely to succeed in its mission. This advice is so obvious as to be banal, but most of the thousands of commercial ads that are immediately available in the mass media violate this obvious prescription. Media mediated messages focused on prevention or positive health behaviors have an even worse hit rate. This deficiency reflects an overconcentration on flash at that expense of the mundane mechanics of persuasion.

Evaluate. Finally, none of this matters if the outcome of our efforts is not evaluated properly. Experimental and quasi-experimental designs should be built into our persuasive efforts from the very start. If we wish to have an impact, it is critical that we have a valid, data-based story to tell. Lacking that story, which is only possible through uncompromisingly stringent design and analysis, we are in the land of the poet, the priest or the snake oil salesman. These are not necessarily bad lands, but they are not fitting surroundings for a proper social scientist.

References

Ajzen, I., & Fishbein, M. (2005). The Influence of Attitudes on Behavior. In D. Albarracin, B. T. Johnson & M. P. Zanna (Eds.), *The handbook of attitudes.* (pp. 173-221). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Allport, G. W. (1935). Attitudes. In C. Murchison (Ed.), *Handbook of Social Psychology* (pp. 798-884). Worcester, MA: Clark University Press.

Appel, V. (1971). On advertising wearout. *Journal of Advertising Research*(11), 11-13.

Aristotle. (1991). *On rhetoric: A theory of civic discourse (G. A. Kennedy, Trans.).* New York: Oxford University Press.

Aristotle. (1999). *Nichomachean ethics (2nd ed.; T. Irwin, Trans.).* Indianapolis, IN: Hackett.

Atkin, C. (2004). Promising strategies for media health campaigns. In W. D. Crano & M. Burgoon (Eds.), *Mass media and drug prevention: Classic and contemporary theories and research* (pp. 35-64). Mahwah, NJ: Erlbaum.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Becker, M. H. (1974). *The health belief model and personal health behavior.* Thorofare, NJ: C.B. Slack.

Bickman, L. (Ed.). (2000). *Validity and social experimentation : Donald Campbell's legacy.* Thousand Oaks, CA: Sage.

Brecher, E. M. (1972). *Licit and illicit drugs; the Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens, and marijuana - including caffeine, nicotine, and alcohol.* Boston: Little, Brown.

Cacioppo, J. T., & Petty, R. E. (1989). Effects of message repetition on argument processing, recall, and persuasion. *Basic and Applied Social Psychology, 10*(1), 3-12.

Campbell, D. T. (1969). Reforms as experiments. *American Psychologist, 24*(4), 409-429.

Cook, T. D., Chelimsky, E., & Shadish, W. R. (1997). Lessons learned in evaluation over the past 25 years. In *Evaluation for the 21st century: A handbook.* (pp. 30-52). Thousand Oaks, CA US: Sage Publications, Inc.

Cook, T. D., Shadish, W. R., Jr., & Reichardt, C. S. (1987). Program evaluation: The worldly science. In *Evaluation studies: Review annual, Vol. 12.* (pp. 31-72). Thousand Oaks, CA US: Sage Publications, Inc.

Crano, W. D. (1995). Attitude strength and vested interest. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences.* (pp. 131-157). Hillsdale, NJ Lawrence Erlbaum Associates, Inc.

Crano, W. D. (1997). Vested interest, symbolic politics, and attitude-behavior consistency. *Journal of Personality and Social Psychology, 72*(3), 485-491.

Crano, W. D. (2002). Introduction. In W. D. Crano & M. Burgoon (Eds.), *Mass media and drug prevention: Classic and contemporary theories and research* (pp. 19-34). Mahwah, NJ: Erlbaum.

Crano, W. D., & Brewer, M. B. (2002). *Principles and methods of social research (2nd ed.).* Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Crano, W. D., & Burgoon, M. (2002). *Mass media and drug prevention: Classic and contemporary theories and research*. Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Crano, W. D., Gilbert, C., Alvaro, E. M., & Siegel, J. T. (2008). Enhancing prediction of inhalant abuse risk in samples of early adolescents: A secondary analysis. *Addictive Behaviors, 33*(7), 895-905.

Crano, W. D., & Prislin, R. (2006). Attitudes and persuasion. *Annual Review of Psychology, 57*, 345-374.

Crano, W. D., Siegel, J. T., Alvaro, E. M., Lac, A., & Hemovich, V. (2008). The at-risk adolescent marijuana nonuser: Expanding the standard distinction. *Prevention Science, 9*(2), 129-137.

Crano, W. D., Siegel, J. T., Alvaro, E. M., & Patel, N. M. (2007). Overcoming adolescents' resistance to anti-inhalant appeals. *Psychology of Addictive Behaviors, 21*(4), 516-524.

Derzon, J. H., & Lipsey, M. W. (2002). A meta-analysis of the effectiveness of mass-communication for changing substance-use knowledge, attitudes, and behavior. In W. D. Crano & M. Burgoon (Eds.), *Mass media and drug prevention: Classic and contemporary theories and research* (pp. 231-258). Mahwah, NJ: Lawrence Erlbaum Associates.

Dillard, J. P., & Anderson, J. W. (2004). The role of fear in persuasion. *Psychology & Marketing, 21*(11), 909-926.

Dirksen, E. M. (1998). *The Education of a Senator*. Urbana. IL: University of Illinois Press.

Donohew, L., Lorch, E. P., & Palmgreen, P. (1991). Sensation seeking and targeting of televised anti-drug PSAs. In L. Donohew, H. E. Sypher & W. J. Bukoski (Eds.), *Persuasive communication and drug abuse prevention.* (pp. 209-226). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Erceg-Hurn, D. M. (2008). Drugs, money, and graphic ads: A critical review of the Montana Meth Project *Prevention Science, 9*, 256-263.

Fazio, R. H., & Zanna, M. P. (1978a). Attitudinal qualities relating to the strength of the attitude-behavior relationship. *Journal of Experimental Social Psychology, 14*(4), 398-408.

Fazio, R. H., & Zanna, M. P. (1978b). On the predictive validity of attitudes: The roles of direct experience and confidence. *Journal of Personality, 46*(2), 228-243.

Fazio, R. H., Zanna, M. P., & Cooper, J. (1978). Direct experience and attitude-behavior consistency: An information processing analysis. *Personality and Social Psychology Bulletin, 4*(1), 48-51.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Fishbein, M., Cappella, J., Hornik, R., Sayeed, S., Yzer, M., & Ahern, R. K. (2002). The role of theory in developing effective antidrug public service announcements. In W. D. Crano & M. Burgoon (Eds.), *Mass media and drug prevention: Classic and contemporary theories and research.* (pp. 89-117). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Flay, B., & Sobel, J. L. (1983). The role of mass media in preventing adolescent substance abuse. In T. J. Glynn, C. G. Leukefeld & J. P. Ludford (Eds.), *Preventing adolescent drug abuse: Intervention strategies*. Rockville, MD: NIDA.

Glasman, L. R., & Albarracin, D. (2006). Forming attitudes that predict future behavior: A meta-analysis of the attitude-behavior relation. *Psychological Bulletin, 132*(5), 778-822.

Green, E. C., & Witte, K. (2006). Can Fear Arousal in Public Health Campaigns Contribute to the Decline of HIV Prevalence? *Journal of Health Communication, 11*(3), 245-259.

Hastings, G., Stead, M., & Webb, J. (2004). Fear appeals in social marketing: Strategic and ethical reasons for concern. *Psychology and Marketing, 21*, **961-986**.

Hornik, R., Jacobsohn, L., Orwin, R., Piesse, A., & Kalton, G. (2008). Effects of the National Youth Anti-drug Media Campaign on youths. *American Journal of Public Health, 98*, 2229-2236.

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion*. New Haven, CN: Yale Univer. Press.

Hovland, C. I., Lumsdaine, A. A., & Sheffield, F. D. (1949). *Experiments on mass communication. (Studies in social psychology in World War II, Vol. 3.)*. Princeton, NJ US: Princeton University Press.

Janz, N. K., & Becker, M. H. (1984). The Health Belief Model: A decade later. *Health Education Quarterly, 11*(1), 1-47.

Johnson, B. T., & Eagly, A. H. (1989). Effects of involvement on persuasion: A meta-analysis. *Psychological Bulletin, 106*(2), 290-314.

Krosnick, J. A., & Abelson, R. P. (1992). The case for measuring attitude strength in surveys. In J. M. Tanur (Ed.), *Questions about questions: Inquiries into the cognitive bases of surveys.* (pp. 177-203). New York, NY US: Russell Sage Foundation.

Kruglanski, A. W., Chun, W. Y., Erb, H. P., Pierro, A., Mannetti, L., & Spiegel, S. (2003). A parametric unimodel of human judgment: Integrating dual-process frameworks in social cognition from a single-mode perspective. In J. P. Forgas, K. D. Williams & W. von Hippel (Eds.), *Social judgments: Implicit and explicit processes.* (pp. 137-161). New York, NY US: Cambridge University Press.

Kruglanski, A. W., & Thompson, E. P. (1999). Persuasion by a single route: A view from the unimodel. *Psychological Inquiry, 10*(2), 83-109.

Lehman, B. J., & Crano, W. D. (2002). The pervasive effects of vested interest on attitude-criterion consistency in political judgment. *Journal of Experimental Social Psychology, 38*(2), 101-112.

Lewin, K., French, J. R. P., Jr., Hendry, C., Deets, L. E., Zander, A., Lippitt, R., et al. (1945). The Practicality of Democracy. In G. Murphy (Ed.), *Human nature and enduring peace: Third yearbook for the Society for the Psychological Study of Social Issues.* (pp. 295-347). Boston, MA US: Houghton Mifflin Company.

Lewin, K., Heider, F., & Heider, G. M. (1936). *Principles of topological psychology*. New York, NY US: McGraw-Hill.

McGuire, W. J. (1969). The nature of attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (Vol. 3, pp. 136-314). Reading, MA: Addison0Wesley.

McGuire, W. J. (1986). The vicissitudes of attitudes and similar representational constructs in twentieth century psychology. *European Journal of Social Psychology, 16*(2), 89-130.

McGuire, W. J. (1996). The Yale communication and attitude-change program in the 1950s. In E. E. Dennis & E. Wartella (Eds.), *American communication research--The remembered history.* (pp. 39-59). Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.

McGuire, W. J. (2003). Doing psychology my way. In R. J. Sternberg (Ed.), *Psychologists defying the crowd: Stories of those who battled the establishment and won.* (pp. 119-137). Washington, DC US: American Psychological Association.

Miller, J., & Muir, D. (2004). *The business of brands*. Hoboken, NJ: Wiley.

Noar, S. M., Zimmerman, R. S., Palmgreen, P., Lustria, M., & Horosewski, M. L. (2006). Integrating Personality and Psychosocial Theoretical Approaches to Understanding Safer Sexual Behavior: Implications for Message Design. *Health Communication, 19*(2), 165-174.

Office, G. A. (2006). ONDCP media campaign, contractor's national evaluation did not find that the youth anti-drug media campaign was effective at reducing drug use. Retrieved February, 2009.

Orwin, R., Cadell, D., Chu, A., Kalton, G., Maklan, D., Morin, C., et al. (2006). *Evaluation of the National Youth Anti-drug Media Campaign: 2004 Report of findings*. Retrieved February, 2009, from http://nida.nih.gov/DESPR/Westat/NSPY2004Report/Vol1/Report.pdf

Petty, R. E., Brinol, P., Tormala, Z. L., & Wegener, D. T. (2007). The role of metacognition in social judgment. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles (2nd ed.).* (pp. 254-284). New York, NY US: Guilford Press.

Petty, R. E., & Cacioppo, J. T. (1986). *Attitude change: Central and peripheral routes to persuasion*. New York, NY: Springer/Verlag.

Petty, R. E., & Cacioppo, J. T. (1996). *Attitudes and persuasion: Classic and contemporary approaches*. Boulder, CO US: Westview Press.

Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). Personal involvement as a determinant of argument-based persuasion. *Journal of Personality and Social Psychology, 41*(5), 847-855.

Petty, R. E., & Krosnick, J. A. (1995). *Attitude strength: Antecedents and consequences*. Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.

Petty, R. E., Tormala, Z. L., & Rucker, D. D. (2004). Resisting persuasion by counterarguing: An attitude strength perspective. In J. T. Jost, M. R. Banaji & D. A. Prentice (Eds.), *Perspectivism in social psychology: The yin and yang of scientific progress.* (pp. 37-51). Washington, DC US: American Psychological Association.

Prislin, R. (1993). Effect of direct experience on the relative importance of attitudes, subjective norms and perceived behavioral control for prediction of intentions and behavior. *Psychology: A Journal of Human Behavior, 30*(3), 51-58.

Prislin, R., & Crano, W. D. (2008). Attitudes and attitude change: The fourth peak. In W. D. Crano & R. Prislin (Eds.), *Attitudes and attitude change* (pp. 3-15). New York: Psychology Press.

Quinn, J. M., & Wood, W. (2004). Forewarnings of Influence Appeals: Inducing Resistance and Acceptance. In E. S. Knowles & J. A. Linn (Eds.), *Resistance and persuasion.* (pp. 193-213). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Ramirez, J. R., Crano, W. D., Quist, R., Burgoon, M., Alvaro, E. M., & Grandpre, J. (2004). Acculturation, Familism, Parental Monitoring, and Knowledge as Predictors of Marijuana and Inhalant Use in Adolescents. *Psychology of Addictive Behaviors, 18*(1), 3-11.

Rhodes, F., Stein, J. A., Fishbein, M., Goldstein, R. B., & Rotheram-Borus, M. J. (2007). Using theory to understand how interventions work: Project RESPECT, condom use, and the integrative model. *AIDS and Behavior, 11*(3), 393-407.

Rimal, R. N., & Flora, J. A. (1997). Interactive technology attributes in health promotion: Practical and theoretical issues. In R. L. Street, Jr., W. R. Gold & T. R. Manning (Eds.), *Health promotion and interactive technology: Theoretical applications and future directions.* (pp. 19-38). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Rimer, B. K., & Kreuter, M. W. (2006). Advancing Tailored Health Communication: A Persuasion and Message Effects Perspective. *Journal of Communication, 56*(1), S184-s201.

Ruiter, R. A. C., Abraham, C., & Kok, G. (2001). Scary warnings and rational precautions: A review of the psychology of fear appeals. *Psychology & Health, 16*(6), 613-630.

Scriven, M. (1991). *Evaluation thesaurus (4th ed.).* Thousand Oaks, CA US: Sage Publications, Inc.

Scriven, M. (1997). Truth and objectivity in evaluation. In E. Chelimsky & W. R. Shadish (Eds.), *Evaluation for the 21st century: A handbook.* (pp. 477-500). Thousand Oaks, CA US: Sage Publications, Inc.

Scriven, M. (2003). Evaluation in the new millennium: The transdisciplinary vision. In S. I. Donaldson & M. Scriven (Eds.), *Evaluating social programs and problems: Visions for the New Millennium.* (pp. 19-41). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Selnow, G. W., & Crano, W. D. (1987). *Planning, implementing, and evaluating targeted communication programs: A manual for business communicators.* New York, NY: Quorum Books.

Shadish, W. R., Jr., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference.* Boston, MA US: Houghton, Mifflin and Company.

Shadish, W. R., Jr., Cook, T. D., & Leviton, L. C. (1991). *Foundations of program evaluation: Theories of practice.* Thousand Oaks, CA US: Sage Publications, Inc.

Siegel, J. T., Alvaro, E. A., Patel, N., & Crano, W. D. (in press). "…you would probably want to do it. Cause that's what made them popular": Exploring perceptions of inhalant utility among young adolescent non-users and occasional users. *Substance Use and Misuse.*

Skenderian, J. J., Siegel, J. T., Crano, W. D., Alvaro, E. E., & Lac, A. (2008). Expectancy change and adolescents' intentions to use marijuana. *Psychology of Addictive Behaviors, 22*(4), 563-569.

Suggs, L. S. (2006). A 10-Year Retrospective of Research in New Technologies for Health Communication. *Journal of Health Communication, 11*(1), 61-74.

Tormala, Z. L. (2008). A new framework for resistance to persuasion: The resistance-appraisals hypothesis. In W. D. Crano & R. Prislin (Eds.), *Attitudes and attitude change* (pp. 213-234). New York: Psychology Press.

Tormala, Z. L., Clarkson, J. J., & Petty, R. E. (2006). Resisting persuasion by the skin of one's teeth: The hidden success of resisted persuasive messages. *Journal of Personality and Social Psychology, 91*(3), 423-435.

Tormala, Z. L., & Petty, R. E. (2002). What doesn't kill me makes me stronger: The effects of resisting persuasion on attitude certainty. *Journal of Personality and Social Psychology, 83*(6), 1298-1313.

Tormala, Z. L., & Petty, R. E. (2004). Resisting Persuasion and Attitude Certainty: A Meta-Cognitive Analysis. In E. S. Knowles & J. A. Linn (Eds.), *Resistance and persuasion.* (pp. 65-82). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Updegraff, J. A., Sherman, D. K., Luyster, F. S., & Mann, T. L. (2007). The effects of message quality and congruency on perceptions of tailored health communications. *Journal of Experimental Social Psychology, 43*(2), 249-257.

Walther, E., & Langer, T. (2008). Attitude formation and change through association: An evaluative conditioning account. In W. D. Crano & R. Prislin (Eds.), *Attitudes and attitude change* (pp. 87-110). New York: Psychology Press.

Walther, E., Nagengast, B., & Trasselli, C. (2005). Evaluative conditioning in social psychology: Facts and speculations. *Cognition & Emotion, 19*(2), 175-196.

Winkielman, P., & Cacioppo, J. T. (2001). Mind at ease puts a smile on the face: Psychophysiological evidence that processing facilitation increases positive affect. *Journal of Personality and Social Psychology, 81* 989-1000.

Wood, W., Rhodes, N., & Biek, M. (1995). Working knowledge and attitude strength: An information-processing analysis. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences.* (pp. 283-313). Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.

Yzer, M. C., Cappella, J. N., Fishbein, M., Hornik, R., Sayeed, S., & Ahern, R. K. (2004). The Role of Distal Variables in Behavior Change: Effects of Adolescents' Risk for Marijuana Use on Intention to Use Marijuana. *Journal of Applied Social Psychology, 34*(6), 1229-1250.

Zajonc, R. (1968). Attitudinal Effects of Mere Exposure. *Journal of Personality and Social Psychology Monographs, 9 (No. 2, Part 2)*, 1-27.

Zhao, X., Sayeed, S., Cappella, J., Hornik, R., Fishbein, M., & Ahern, R. K. (2006). Targeting Norm-Related Beliefs About Marijuana Use in an Adolescent Population. *Health Communication, 19*(3), 187-196.

Figure 1. Marijuana Initiation Trajectories of Round 1 Resolute and Vulnerable Nonusers

across Four Measurement Rounds (data from the National Survey of Parents and Youth;

(*N* = 2111)