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AUTHOR Ward, Scott; Ray, Michael L.
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ABSTRACT

This paper examines some of the cognitive responses people experience while attending to messages. Two laboratory studies and a field experiment were conducted. In the lab studies, three different audience groups (junior and senior high school students and parents) were shown three different anti-drug abuse messages. Various levels of audio distraction--similar to "real world" viewing situations--occurred during exposure to the messages which were presented in the context of a current television program. The findings were: student groups generally commented about the ads less than parents, senior high students counterargued more and connected less than other groups. and adults were particularly sensitive to distractions. In the second lab study adult subjects were mailed a booklet about drug abuse two weeks following participation in the experiment. Compared to a group that saw no anti-drug ads, those who had seen anti-drug ads were more likely to recall receiving a booklet, to have read it, and to have had a drug discussion recently. In the field experiment two key ads were run during a 32-day period via split-cable facility on the West Coast. Telephone interviews conducted pre-, during, and post-exposure indicated that both ads stimulated interest compared to pre-campaign levels. (Author/WR)

COGNITIVE RESPONSES TO MASS COMMUNICATION:

RESULTS FROM LABORATORY STUDIES AND A FIELD EXPERIMENT

Scott Ward
(Harvard University)

Michael L. Ray
(Stanford University)

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The purpose of this paper is to examine some of the cognitive responses people experience while attending to messages--in this case, anti-drug abuse television commercials. Of particular interest is how these cognitive responses vary as a function of the particular audience group, the message involved, and the level of distraction present during viewing.

A secondary objective is to illustrate a research system, in which laboratory results can be tested in field experiments in order to pre-test commercial messages.[1]

The Nature of Cognitive Responses to Communication

The idea of directly measuring information-processing during communication is a provoking one. The parallel in social psychology would be to find out "what is going on inside a subject's head" while engaging in social behavior. In fact, introspective psychology was concerned with such "thought monitoring" although the focus was on content, not thought processes. Like psychologists, communications researchers attempt to infer mental processes from experiments: hypotheses are validated or invalidated on the basis of whether post communication outcomes are observed as a function of manipulated independent variables, which are in turn based on some assumptions about the effects of independent variables on some mediating process. The problem, as Skinner and his like-minded colleagues continually point out, is that the inferences made about un-observable processes can lead one to mistake inferences for explanations.

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[1] A complete description of the project and the research system is in "Experimentation to Improve Pre-testing of Drug Abuse Education and Information Campaigns," Michael L. Ray, Scott Ward, and Gerald Lesser, Marketing Science Institute Research Report, Cambridge, Massachusetts, 1973. See also Michael L. Ray, "Marketing Communication and the Hierarchy of Effects," in Peter Clarke, (ed.), New Models for Mass Communication Research, Sage Publications (Beverly Hills), 1974, pp. 147-176.

Various "hierarchy of effects" notions of communications effects are a case in point, and the dangers of infering processes from them are pointed out by Carter, et al. (1973, p. 36):

> The picture we get of how humans use communication and respond to its use by others is conveyed...by the paradigms of sender-message-receiver and of attitude change. We get a picture of incremental characteristics and of selectivety mechanisms. What is represented in such accounts is not so much summary of human communication behavior as it is summary of things observed using these paradigms.

Recent attempts to directly measure information-processing are illustrated in studies of effects of distraction on attitude change (Greenwald, 1969; Baron, Baron, and Miller, 1973), stopping behavior (Carter, et al., 1974) and advertising effectiveness (Wright, 1972; Krugman, 1968a, 1968b,; Mitchell, 1967). The cognitive processes which are thought to comprise information processing are most often treated as mediating variables, although some studies have inferred cognitive processes as independent variables (McGuire, 1968, 1969; McGuire and Papegorgis, 1962).

Cognitive processes which mediate communication effects have been described by various authors--particularly those interested in persuasion. Hovland, Janis and Kelly (1953) and Kelman (1953) suggested that acceptance is a function of mental "rehearsal" of message arguments and covert responses to message arguments. Abelson (1959) posited four response models: denial, bolstering, differentiation and trancedence. Krugman (1968b) and other advertising researchers have examined "connections," i.e., processes by which message recipients link message content and self-experience. Janis and Terwilliger (1962) suggest five response modes: major and minor criticism, major and minor favorable responses, and paraphrasing message arguments. Mitchell (1967) examined "spontaneous reactions" to advertisements and suggests they can be defined in terms of what they imply about message propositions and receiver action. Five levels of response along both dimensions

were labeled: rejection, resistance, neutrality, acceptance, extension. Kelman and Baron (1968) offer an elaborate 14-mode analysis, differentiating in terms of two dimensions: nature of process (whether motivation is to avoid or confront new information) and nature of outcome (whether a state of partial inconsistency is maintained or eliminated). Wright (1972) proposes four concurrently occuring cognitive-response mediators: counterarguing, support argument, source derogation, and curiosity.

While these conceptualizations of cognitive responses which mediate communication effects are drawn from studies dealing with a variety of very different research interests, three general kinds of responses are common: refutation or counterarguing,[2] support arguments, and in some cases, connections. In prior research, usually only one of the mediators in considered, although, as Wright (1972) points out, respondents are likely to experience various cognitive responses, and these may occur concurrently, rather than "along some time continuum...or in any particular linear sequence within the receiver's stream of thoughts."

Effects of Distraction

In early persuasion research, investigators suggested that subjects generate counterarguments while attending to messages opposed to their position, and that distracting subjects while attending to persuasive message might inhibit counterargument production, thereby facilitating attitude change. Distraction cannot be so great as to eliminate message comprehension, and the topic must be a salient one for subjects.

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[2]Factors affecting the generation of counterarguments as mediating variables are summarized in Table 1.

Festinger and Maccoby (1964) reported that distraction facilitated attitude change, and they suggest that the effect obtained due to counterargument disruption. Other investigators have suggested other interpretations of the process,[3] but the finding has been obtained using a variety of distractions: film (Festinger and Maccoby, 1964), light monitoring (Keating and Brock, 1971), copying task (Kiesler and Mathog, 1968), slides (Rosenblatt, 1966), sound effects (Fule and Rehill, 1970), and radio static (Siverman and Regula, 1968).

Failure to produce the distraction effect are most often attributed to factors that cause distraction to reduce message comprehension (Baron, Baron and Miller, 1973). Roberts and Maccoby (1974) point out that the expected relationship between counterarguing and resistance obtains only when some degree of commitment to a position exists before message reception.

In distraction research, the dependent variable is normally attitude change, and counterarguing is usually the only mediating process considered. In the present research, our interest is in assessing effects of distraction on various cognitive responses--primarily counterarguments and connections.

The Present Study

Results reported in this paper are from a study conducted for the National Institute for Mental Health, the purpose of which was to develop inexpensive and practical methods for pre-testing government-sponsored anti-drug abuse information campaigns. The study focused on methods of pre-testing "public service" television commercials produced by various government and private agencies.

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[3]Several alternative hypotheses to the counterargument disruption hypothesis have been offered. The most promising is the dissonance-based "effort hypothesis," i.e., subjects justify effort expanded to attend to an attitude discrepant message by distorting their initial attitude to minimize discrepancy with the message. See Miller and Levy, 1967; Baron, Baron and Miller, 1973.

Despite recent advances in knowledge and techniques, pre-testing commercial messages remains an imperfect art. Communication planners rarely have much faith that pre-test data provide a valid and reliable basis for predicting effects of messages on target audiences. Often, pre-testers will simply assess people's attitudes toward commercials being tested.[4]

In the National Institute for Mental Health project, a technique was developed which government communication planners could employ to test public service messages; two to three weeks would be required for each set of messages tested (i.e., short-term effects evaluated against a prior objectives), for a cost of about $2,000. The technique can readily be adapted to messages in other media.

The project consisted of three studies: First there were two large scale laboratory experiments, in which measures were developed and variables were evaluated in terms of patterns of response differences across three television commercials for three different audience types (junior and senior high school students and parents). The final study was a field experiment, utilizing a split cable facility. The purpose of this study was to provide field comparison data with which to make tentative assessment of the validity of the less natural laboratory predictions.

The design of the first laboratory study is illustrated in Figure 1. The three 30-second messages used as stimulus materials are described in the Appendix. Briefly, one ("Walkout") was aimed primarily at parents of adolescents and pre-adolescents, with the objective of stimulating concern about drug abuse, and

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[4] However popular such attitude surveys have been in commercial advertising pre-testing, it is not clear that they are very helpful to campaign planners. Respondents express attitudes toward pre-test messages when asked, but attitude formation and change may not actually occur when people are exposed in the natural environment; in any case, attitude data may not be very meaningful since communication campaigns usually have objectives beyond attitude formation and change. Some marketers simply measure day-after recall of pre-test messages aired in a test market, and base decisions on recognition levels. This may fail to take into account any cognitive activity which might have occured during or following exposure mediating communication effects in important ways. Such recall measures also ignore possible effects which may occur as a function of repetition.

interest in receiving more detailed information (a booklet). "Big Brother" intended to stimulate older adolescents to warn younger siblings about the danger of drug abuse; "People," was more amorpohous in its objectives, containing "face shots" of various individuals (including celebrities) remarking about the drug abuse problem, and concluding with an appeal to send for a booklet about it.

Subjects from each population group (junior high school students, (n=90) senior high school students, (n=91) and parents, (n=257) in the Palo Alto, California area were told that they were participating in a "Television Violence-Humor Project," and their opinions were sought in this area. Subjects viewed an 18-minute video tape of popular television programs, which contained one of the test messages, as well as other (commercial) advertisements and program interruptions. There were three levels of distraction: none, low, and high. Low and high levels were differentiated by decibel levels of a tape recording during the experiment (a male-female conversation).

Following exposure, subjects were taken to another room, where they completed post-exposure questionnaires. After a series of intervening questions on television humor-violence, subjects were asked if they remembered any of the commercials and if so, "what they thought about" while watching. The latter question provided data on cognitive responses--counterarguments and connections--to be reported here. Subsequent questions obtained ranking of drug abuse as a social problem (from a listing of 15 social problems) and interest in receiving booklets related to all of the commercials embedded in the programming. Two of the booklets were those referred to in the anti-drug commercials to which subjects had been exposed.

Expectations for the Data

Attitude change was not of interest in the study, since the objectives of the commercials used as stimulus materials had quite different objectives, i.e., they were not designed to be in opposition to subject's existing opinions, as in the typical laboratory attitude change experiment. In fact, we had no control over the messages--a "real world" constraints. Nonetheless, on the basis of the objectives of the messages, and our knowledge of the orientations of subject populations, from previous research on drug attitudes and usage, (Johnston, 1973; National Commission Marijuana and Drug Abuse, 1972), we specified the following general expectations for our data:

1. Since adults can be expected to hold attitudes consistent with the anti-drug abuse messages, they should counterargue less, and experience more connections than teen-agers. However, since the anti-drug abuse messages contain unpleasant, perhaps threatening information, adults should be particularly sensitive to level of distration, due to the high degree of cognitive effort required to counterargue or connect.

2. Many senior high school students can be expected to be opposed to the anti-drug abuse messages, and to possess much information and extensive predispositions about drug abuse. Therefore, they should counterargue more than other groups, but increasing distraction should disrupt counterargument production.

3. For junior high students, effects should be greatest in the "none" or "low" distraction condition. These younger students should have less information about drug abuse and less developed attitudes than older teen-agers and parents. Consequently, they should exhibit low levels of counterarguing and connections, and distraction should dampen messages effects further.

Results

Effects of Inductions

In persuasion research, level of distraction cannot be so great as to greatly reduce message comprehension. In the present research, effects of distraction were gauged through a self-report distraction scale, and through analyses of interactions of ad stimulus and recall with distraction level.

A first question is whether distraction had any effects. In the final post-test questionnaire, subjects were asked how distracting the experience was via a nine-point scale ("not at all distracting"--"so distracting I did not pay attention to commercials"). For all three subject populations, significant F-ratios obtained. In the parents group, for example, mean responses on the scale ranged from 2.3—7.2 for the "Big Brother" ad ($p<.05$) and from 1.8 (no distraction) to 3.9 (high distraction) for the "Walkout" commercial ($p<.01$).

Assessing effects of distraction level on recall, it is apparent from the data in Table 2 that a high level of distraction affected subject's ability to recall two of the ads ("Big Brother" and "People"), but recall was uniform and high for "Walkout."

Data in Table 3 show effects of distraction level on three components of recall: points made, situation, and sponsor. Data indicate that increasing distraction inhibited each type of recall. However, data in Table 4 indicate that distraction's effects on various kinds of recall varies by subject population. Only situation recall was affected significantly ($p<.01$), and for seniors, situation recall actually increases between low and high distraction levels.

Finally, a significant three-way interaction on total recall (not shown) indicates that distraction's effects on <u>total</u> recall (sum of points, situation and sponsor recall) depends not only on subject population, but on ad stimulus as well ($F=3.00$, 8 & 357 df, $p<.001$). While total recall for "Big Brother" decreases with increasing distraction for senior high students and parents, recall for "Walkout" actually increases with distraction for seniors, and does not vary much with distraction for parents. For junior high students, levels of recall are lower than for the other two groups, and recall does not vary markedly with increasing distraction.

We can conclude from these results that the distraction induction was successful. The fact that its effects on recall vary markedly by ad stimulus and subject population suggest that it did not simply "wash out" opportunities for learning, but had differential impact in interaction with other variables.

Cognitive Responses

Since small sample sizes preclude reliable analysis of three-way interactions between subject population, distraction, and ad stimulus, data are presented by subject population and ad stimulus (Table 5) and by subject population and distraction (Table 6). In both cases, "percent commenting" refers to the proportion of recalling respondents in each group which chose to respond to an open-ended question about what they thought about while viewing.

Data in Table 5 show some data consistent with our expectations. Students chose to comment about thoughts while viewing less than did parents, and the average percent commenting for senior high students is inflated due to the very high percent commenting on "Walkout" (90%), relative to the other two ads.

Significant differences in cognitive responses to the three ads were found within junior and parent subject groups. For seniors, ad stimuli did not produce significantly different cognitive responses. We expected senior high students to be more negatively predisposed to anti-drug abuse information, therefore counterarguing more and "connecting" less than the other two groups. The data bear out this expectation, although "Walkout" stimulated equal percentages of counterarguments for seniors and parents (52% of comments) and stimulated the most counterarguing of the three ad stimuli for junior high school students.

We also expected that parents would exhibit more connections than the student groups, and this expectation holds when compared to seniors and it is

generally true compared to juniors. However, juniors exhibit the greatest percent of connections to "Big Brother," relative to other ad stimuli, and to the other groups. This is no doubt due to the fact that "Big Brother" appeals to junior high aged youths, protraying a junior high aged boy interacting with his older brother. Interestingly, while the ad was intended primarily to influence senior high school aged youths, only 7% of the senior's comments indicated connections with "Big Brother." Connections for this ad were higher among the other subject populations. On the other hand, "Big Brother" did stimulate least counterarguing among senior high students, relative to the other two advertisements.

The ad stimuli were also differentially effective for subject populations in stimulating concern for drug abuse as a social problem, and in stimulating interest in receiving more detailed information. As expected, senior high students rank drug abuse as less of a problem (from a list of 15 social problems) than juniors and parents. While "Walkout" is a powerful ad, judging by recall and comment levels, it is not very effective in stimulating drug abuse ranking for juniors and seniors; however, it is most effective among it's intended audience: parents. "Walkout" also has most impact on parent's desires to receive a booklet containing information about drug abuse, relative to other ads, and relative to the other subject populations. Interestingly, while "Walkout" had powerful effects on cognitive responses among seniors, but little effect on ranking of drug abuse as a social problem, the ad was most effective for this subject population in stimulating desire for a booklet. The latter results must be interpreted with caution, however, since the effects on booklet interest only approach significance ($F=2.01$, 4 & 357 df, $p<.10$).

Examining effects of distraction (Table 6), we expected that percent commenting, and cognitive responses would decrease as distraction increases. However, for each group, interactions between distraction level and cognitive

responses are not significant. We had expected adults to be particularly sensitive to distraction, since making cognitive responses requires some effort, and this effort should be particularly difficult to justify when the information is dissonant with existing attitudes. Consequently, we expected adults to simply "tune out" as distraction increased. While this expectation was not confirmed by the cognitive response data, adult's ranking of drug abuse as social problem did show a linear increase with distraction level. Data in Table 7 do show that, relative to seniors, parents counterargue less in the high distraction condition. In less distracting conditions, parents counterargue at comparable levels to seniors.

We expected that increasing distraction would disrupt counterargument production among senior high students, who we expected to be most negatively predisposed to the messages, most motivated to counterargue, and have most information with which to counterargue. Again, however, counterargument production was not significantly related to distraction level for this group. Perhaps distraction cannot effectively overcome relatively strong orientations regarding drug abuse among senior high school students. Data in Table 7 show that, within each distraction level, seniors invariably counterargue more and connect less than juniors or parents. For junior high students, distraction also has little effect. It may be that the curiosity of these younger students with the topic of drug abuse is sufficient to overcome distraction, but, on the other hand, junior high school students may not be much interested, or our measures are not sensitive to their cognitive responses -- an interpretation which could be reflected in the low levels of counterarguing and connections, and the high levels of "other" comments, relative to seniors and parents.

Second Laboratory Experiment

A second large-scale experiment was conducted in Bakersfield, California (n=753). The objectives of this study included testing reliability of the Palo Alto results, and examining effects of new variables,[5] including measures of behavioral consequences of exposure to the ad stimuli. All subjects participating in the Bakersfield study were mailed a booklet about drug abuse within a few days after participating in the experiment, and between 10-14 days following the experiment, a sub-sample of adults (n=242) was interviewed by phone, and asked if they recalled receipt of any booklet, if they read most or all of it, had a drug discussion during the week, and, if they recall receiving the booklet, whether or not the found it helpful.

Regarding reliability of the results, data in Table 8 compare the Palo Alto and Bakersfield studies in terms of nine dependent variables, for "Walkout" and "Big Brother." While absolute levels differ for the two studies, the patterns and directions of differences are consistent, except in two cases: percent connections, and ranking of drug abuse as a social problem. For example, "Walkout" stimulated fewer connections (17%) in Bakersfield, vs. 29% of comments in the Palo Alto study. Nonetheless, the overall patterns indicate a reasonably high degree of reliability for the measures and procedures.

Data in Table 9 show various behavioral consequences of exposure to the various ad stimuli. All of the sub-sample of 242 adults had been mailed a booklet (whether they had indicated interest in receiving one in the post-test interview

[5]In the Bakersfield study, a "competing messages" condition was implemented, in which Ss saw anti-drug abuse messages in the same program segments with over-the-counter drug ads, or other public service messages. The cover story, test procedures, audience populations, etc., were the same as in Palo Alto. However, based on the Palo Alto results, one level of distraction was used, midway in decibels between the "low" and "high" distraction levels in the earlier research.

or not). However, the actual effects on behavior depend on the particular ad the adults had seen in the experiment, 10-14 days earlier. Compared to the control condition (Ss who had not been exposed to any of the ad stimuli in the experiment), those who had seen "Walkout" were far more likely to recall receiving the booklet (91%), and they were more likely to report having had a discussion about drugs in the ensuing week (due to timing of the phone interview, the discussion may have been a direct consequence of experimental exposure, i.e., occurring in the time between participation in the experiment, and receipt of the booklet through the mail).

On the other hand, subjects who saw "Big Brother" were least likely of all subjects to recall receipt of a booklet, but they were most likely to report having read most or all of it, and to have found it "very helpful." These subjects reported having a drug discussion less than those who saw "Walkout."

Field Experiment

The final stage of the project involved a field experiment, in which "Walkout" and "Big Brother" were broadcast over a split-cable television facility in a west coast city.[6] In terms of the project objectives, we wished to see if the patterns of responses we had obtained in the artificial laboratory environments would be validated in the natural conditions afforded by a field experiment. Space considerations preclude full analysis of the procedures and results for the field experiment. Of primary concern here is whether the patterns of results obtained are consistent with the early laboratory research. Data in Table 10 essentially confirm our analysis of relative differences between "Walkout" and "Big Brother," in terms of effects on adults. Midway during the campaign, following

[6]The facility is run by AdTel, Inc. As Figure 2 shows, there were 209 simultaneous showings of the two commercials on Cable A and Cable B over a 32-day period. This averages 6.5 showings per day, equivalent to an $18 million advertising campaign if expanded to the nation and run for a year. The cables rearch highly comparable samples in terms of demographic characteristics.

essentially equal exposures to the two ads, "Walkout" is better recognized, stimulates recall of seeing any anti-drug ads (even if "Big Brother" is not recalled specifically), incurs more negative affect and counterarguing, and fewer connections than "Big Brother." In every case, "Walkout" is associated with relatively greater incidence of behavioral effects--reading about drug abuse, talking about the problem--than "Big Brother." These results are highly consistent with the Palo Alto and Bakersfield studies.[7]

Discussion

It is perhaps not too surprising that a message intended for a particular audience has a greater effect on that audience than a message prepared for for another audience. However, the essential objective of our project was to suggest ways of pre-testing public service messages, and our essential argument is that multiple dependent variables are called for, in order to adequately evaluate the efficacy of alternative messages. We also wished to illustrate to government communication planners the necessity of operationalizing some variables which are important to include since they approximate natural viewing conditions, and since they can be expected to have important mediating effects, on the basis of prior research (e.g., inclusion of distraction and competition variables).

At a practical level, the results clearly point to the necessity of carefully defining message objectives in terms of intended audience segments. Moreover, extensive analysis of pre-test data is necessary. For example, in a forced-choice situation often faced by communication campaign planners, one might have erroneously concluded that "Big Brother" was a better alternative than "Walkout" for adults, since it stimulates fewer counterarguments and as many connections as "Walkout." However, in terms of objectives such as booklet interest, behavior,

[7]In the post-communication campaign wave of interviews, most effects were found to converge for the two ads, to pre-campaign levels, or lower. Intriguing questions for research remain concerning these post-campaign effects, resembling, in a general way, the well-known "sleeper effect." The topic is especially important when the stimuli are repetitive, as in the case of advertising.

and raising salience of the drug abuse problem, "Walkout" is a far more potent ad.

In terms of theoretical and methodological implications of the project, we recognize that our data do not clearly establish the nature of relationships between distraction and various cognitive responses. And one can criticize our procedures in terms of demand characteristics attending the post-experiment questionnaires. Nonetheless, we do avoid asking people to "recall" specific counterarguments and connections they experience during communication. Instead, our cognitive response data were coded from an open-end question about what thoughts, if any, occuring during experimental exposure. Other possibilities exist, e.g., having people speak into a tape recorder during exposure, (Janis and Terwilger, 1962) or allowing subjects to stop the communication experience, as Carter (1974) has done.

Behavioral scientists frequently point out that much behavior is conditional on a host of exogenous and endogenous factors ("...it depends..."). Hopefully, our data suggest some factors on which mass communication effects depend. In future research, the implications of repetition should be considered. It is most important, to examine with more precision, and in more detail, the nature of counterarguments, and their relationship to other cognitive response processes, and to later cognitions and behavior. We have not meant to suggest that counter-arguments must <u>always</u> inhibit change or message acceptance although change processes have been the focus of virtually all research in the area. However, the precise operations and effects of counterarguments are still not clearly understood.

Finally in the future research, message characteristics should be conceptually defined and controlled. Lack of control may mediate the theoretical implications of our research, but, on the other hand, the use of laboratory and field methodologies, and "real world" stimuli represent one attempt to successfully apply communication variables and research methods to contemporary communication problems.

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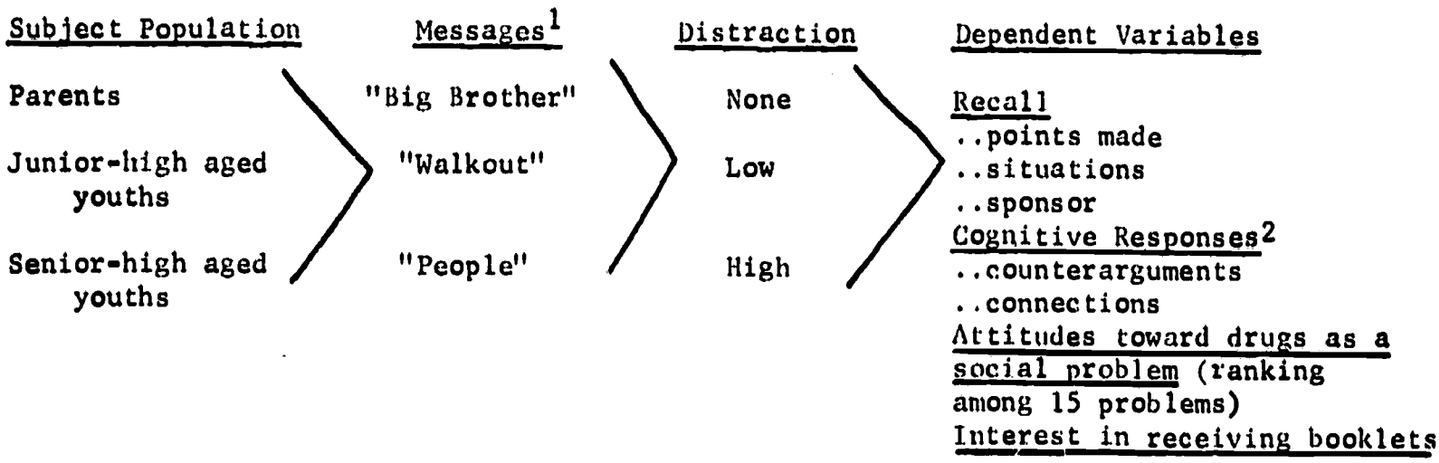
Figure 1

Study Design
(Palo Alto, California)



1. See Appendix for complete description of ad stimuli.

2. "Counterarguments" were operationally defined as arguments or statements against specific points, or spokesmen in the commercials, and/or arguments or disagreements about the situations portrayed. "Connections" were operationally defined in terms of expressed linkages between message content and personal life, or lives of family and/or friends (e.g., "I thought about how terrible it would be if my son took drugs").

Figure 2

SCHEDULING OF COMMERCIALS AND SURVEYS: FIELD EXPERIMENT

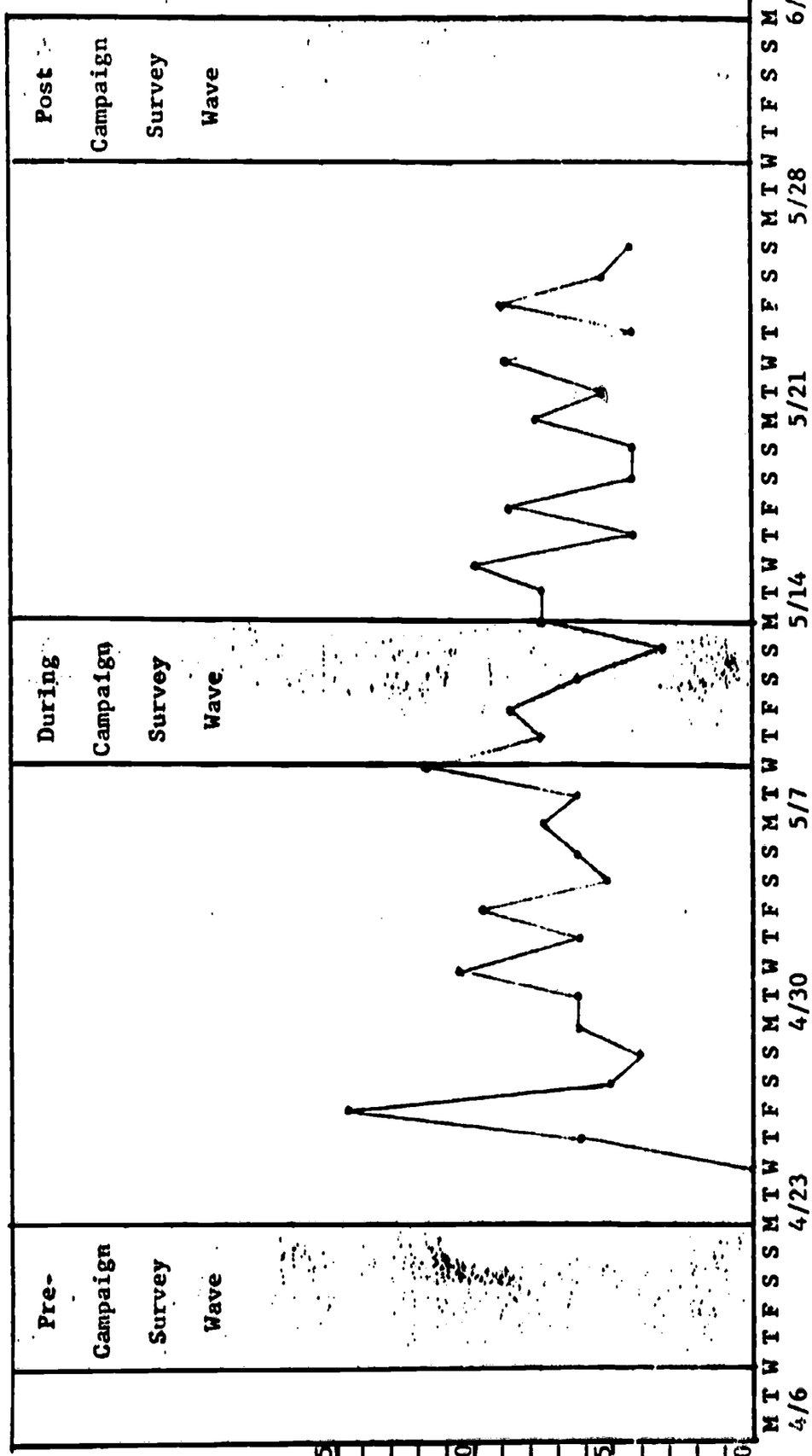


Table 1

FACTORS AFFECTING COUNTERARGUMENT GENERATION

(Adapted from Wright, 1972)

Factor	Relationship	Key Reference
Source Expertise	inverse	Cook (1969)
Distraction	inverse	Osterhouse & Brock (1970) Baron, Baron & Miller (1973)
Threat	positive	Janis & Terwilliger (1962)
Confidence	positive	Wright (1972)
*Motivation to Resist	positive	Roberts and Maccoby (1974)

*Added since Wright's review

Table 2

PERCENT BASE RECALL OF TEST COMMERCIALS BY SUBJECT POPULATION AND DISTRACTION LEVELS

(sample sizes in parentheses)

	Ad Stimulus		
Subject Population	Walkout	Big Brother	People
Juniors	91% (32)	76% (29)	90% (29)
Seniors	100% (31)	83% (29)	71% (31)
Parents	95% (83)	75% (93)	74% (81)
Distraction			
None	94% (49)	88% (50)	83% (46)
Low	96% (47)	82% (51)	87% (47)
High	96% (50)	62% (50)	60% (48)

Table 3

POINTS, SITUATION, AND SPONSOR RECALL, BY DISTRACTION LEVEL

Recall		Distraction Level None (n=145)	Low (n=145)	High (n=148)
Points[1] (rg=0-3)	$\bar{x}$	.61	.46	.35
	s.d.	.92	.79	.63
Situation[2] (rg=0-3)	$\bar{x}$	1.28	1.32	.91
	s.d.	1.04	.91	.90
Sponsor[3] (rg=0-3)	$\bar{x}$	1.01	.95	.79
	s.d.	.65	.56	.72

1. ($F = 4.44$, 2 & 359 df, $p < .05$)
2. ($F = 9.62$, 2 & 357 df, $p < .001$)
3. ($F = 4.72$, 2 & 357 df, $p < .01$)

Table 4

POINTS, SITUATION, SPONSOR, AND TOTAL RECALL, BY SUBJECT POPULATION AND DISTRACTION LEVEL

	Juniors			Seniors			Parents		
Recall	None	Low	High	None	Low	High	None	Low	High
Points[1] (rg=0-3)	.37	.26	.27	.48	.43	.50	.74	.52	.33
Situation[2] (rg=0-3)	.93	1.37	.97	1.52	1.20	1.34	1.31	1.35	.72
Sponsor[3] (rg=0-3)	.77	.70	.60	1.07	1.07	1.00	1.07	1.00	.78
Total[4] (rg=0-9)	2.07	2.33	1.83	3.07	2.73	2.78	3.06	2.88	1.83

1. ($F = 1.17$, n.s.)
2. ($F = 3.45$, 4 & 357, df, $p < .01$)
3. ($F = .49$, n.s.)
4. ($F = 2.19$, n.s.)

Tabel 5

COGNITIVE RESPONSES, RANKING DRUG ABUSE AS A SOCIAL PROBLEM, AND BOOKLET REQUESTS, BY SUBJECT POPULATION AND AD STIMULUS

	Juniors[1]				Seniors[2]				Parents[3]			
Cognitive Responses	WO*	BB*	P*	X̄	WO	BB	P	X̄	WO	BB	P	X̄
% commenting	72%	77%	85%	78%	90%	63%	68%	74%	92%	85%	78%	85%
% counterarguments	21	9	12	14	52	33	45	43	52	24	25	34
% connections	24	36	8	23	16	17	0	11	29	27	7	21
% other comments	28	32	65	42	22	13	23	19	11	34	11	19
(n, base recall)	(29)	(22)	(26)		(31)	(24)	(22)		(79)	(71)	(79)	
Ranking of Drug[4] Abuse as Social Problem (rg=1=15, most-least important)	7.00	5.18	5.28		7.42	7.00	8.58		5.11	5.99	6.06	
Booklet Requests (higher mean = greater interest)												
Booklet #1		n.s.				n.s.				n.s.		
Booklet #2[5]	5.26	5.50	4.14		6.61	4.64	3.97		7.50	6.85	6.79	

1. (x^2 = 12.6, 4df, $p<.05$)
2. (x^2 = 3.9, 4df, n.s.)
3. (x^2=46.4, 4df, $p<.001$)
4. (F = 2.62, 4 & 357df, $p<.05$)
5. (F= 2.01, 4 & 357df, $p<.10$)

Table 6

COGNITIVE RESPONSES AND RANKING DRUG ABUSE AS SOCIAL PROBLEM
BY SUBJECT POPULATION CONTROLLING FOR DISTRACTION LEVEL

	Juniors[1]				Seniors[2]				Parents[3]			
distraction: Cognitive Responses	none	low	high		none	low	high		none	low	high	
				x				x				x
% commenting	63%	67%	60%	63%	62%	67%	59%	63%	77%	78%	56%	70%
% counterarguing	13	10	17	13	45	37	34	39	40	35	23	33
% connections	23	17	17	19	10	10	10	10	23	21	9	18
% other comments	27	40	26	31	7	20	15	14	14	22	32	23
(base n recalling)	(30)	(30)	(30)		(29)	(30)	(29)		(86)	(85)	(85)	
Ranking of Drug[4] Abuse as Social Problem (rg=1-15, most-least important)	5.43	5.70	6.98		7.66	7.83	7.58		6.49	5.79	4.91	

1. (x^2 = 3.0, 4df, n.s.)
2. (x^2 = 3.7x 4df, n.s.)
3. (x^2 = 7.3, 4df, n.s.)
4. (F = 2.66, 4 and 356df, p<.05)

Table 7

COGNITIVE RESPONSES BY DISTRACTION LEVEL, CONTROLLING FOR SUBJECT POPULATION

	None[1]				Low[2]				High[3]			
	Jr.	Sr.	Par.		Jr.	Sr.	Par.		Jr.	Sr.	Par.	
				x				x				x
% commenting	63%	62%	77%	70%	67%	67%	78%	70%	60%	59%	56%	58%
% counterarguing	13	45	40	33	10	37	35	27	17	34	23	25
% connecting	23	10	23	19	17	10	21	16	17	10	9	12
% other comments	27	7	14	16	40	20	22	27	26	15	32	24
(base n recalling)	(30)	(29)	(86)		(30)	(30)	(85)		(30)	(29)	(85)	

1. (x^2 = 18.9, 4df, p .001)
2. (x^2 = 16.1, 4df, p .01)
3. (x^2 = 14.2, 4df, p .01)

Table 8

COMPARISON OF VARIOUS RESULTS FROM TWO EXPERIMENTS, FOR TWO AD STIMULI

(parents sample only)

	Palo Alto Study		Bakersfield Study	
	Walkout	Big Brother	Walkout	Big Brother
Recall				
Points made	.41	.75	.25	.71
Situation	1.35	1.16	.84	.75
Sponsor	1.05	.91	.81	.79
Cognitive Responses				
% commenting	92%	85%	81%	80%
% counterarguments	52	24	52	15
% connections	29	27	17	26
Rank of Drug Problem (1-15)	5.12	5.98	5.23	4.82
Booklet Interest: #1	7.37	6.82	6.42	6.14
Booklet Interest: #2	7.50	6.85	7.07	6.65

TABLE 9

BEHAVIOR IMPLICATIONS: RECALL RECEIVING BOOKLET, READING IT, AND DISCUSSING DRUGS, BY AD STIMULUS, 10-14 DAYS AFTER EXPERIMENT

(Bakersfield Experiment)
(n=242)

	Ad Stimulus			
	None	Walkout	Big Brother	People
	n	n	n	n
Recall booklet receipt	68% (40)	91% (40)	61% (46)	70% (47)
Read most or all	37% (27)	51% (37)	54% (24)	34% (29)
Had drug discussion this week	24% (29)	53% (30)	32% (25)	27% (29)
Found very helpful	39% (23)	45% (29)	55% (18)	45% (20)

TABLE 10

FIELD EXPERIMENT RESULTS
-During Campaign Wave only-
(Parents Audience)

	Walkout (Cable A)	Big Brother (Cable B)
$\bar{x}$ reported broadcast exposures	3.12	1.47
seen any anti-drug ads	66%	47%
best remembered	13%	11%
Cognitive Responses		
General positive affect	34%	62%
General negative affect	17	4
Specific counterargument	27	2
Connection	20	28
Rank of Drug Problem (1-7)	2.26	2.52
Other Effects		
In past 2 days...		
$\bar{x}$ times thought about drug abuse	3.30	2.68
$\bar{x}$ times read about drug abuse	2.11	1.55
$\bar{x}$ times talked about drug abuse	2.55	2.01

APPENDIX

THE THREE TEST COMMERICALS

Big Brother

Audio

You're 17-old enough to know about things like speed, grass, acid and smack. We don't intend to give you any advice. You wouldn't listen. But the trouble is neither will your kid brother. He doesn t know one-half of the things you do about drugs, like how they affect your body.

He's really a set-up for the guy selling the stuff. We can't warn your kid brother but maybe you can.

Visual

--rear shot of teenage boy--blonde, walking under trees (dressed neatly in jeans)
--camera points to little brother walking beside him (dressed like former)
--closeup of both faces
--they walk away from camera, across a street (the area resembles suburbia in spring time)

Walkout*

Audio

(Son) "Hey dad, what's happening?" (Dad) "I'll show you what's happening get in that room. Now your mother found that in your room, would you please explain it?" (Son) "It's nothing." (Mom) "What's it called, Johnny?" (Son) "Dope, grass, whatever you want to call it." (Mom) "Then you must be known as Junkie?" (Son) "No dad, I'm sorry but it's just what I like to do. Look you drink. I see you ambling from the kitchen." (Mom) "My son, my marvelous son, is a junkie. We're just looking for respect in this town. Why are you tearing us down?" (Son) "I'm not tearing you down. I'm the only one that I'll hurt." (Dad) "What's the next step?" (Son) "You people are fools, you don't know what you're talking about." (Announcer) "Before you talk with your child you ought to read this free booklet about drug abuse. It's written by people who know what they're talking about. Write Drug Abuse Information, Box 1080, Washington D.C. Do it before it's too late." (door slams)

Visual

--closeup of disturbed mother
--enraged father, talking with son in living room
--three different still shots of all three disturbed faces

*Edited from 60-second to 30-second version

APPENDIX
(continued)

--still shot of a son walking out front door
--picture of free drug abuse booklet "Answers to Most Frequently Asked Questions"
--address of NCDAI

People*

Audio

(Adults) "Blaming the kids but that's taking the easy way out. You can't just blame the kids, that's too easy and it's not the answer. I believe, it has to start with each of us in our own home. Yes, I believe we can solve this problem. The question is where do we begin? No, where do I begin? First, of all we have to stop kidding ourselves drug abuse is a problem. It's the most unfunny thing I can think of. It bothers me, it's frustrating, and I don't know what to do about it. I don't have an answer, I wish I did. I don't know, I really don't know." (Announcer) "Up to this point, nobody seems to know what to do about the problem of drug abuse. But now the White House Special Action Office for drug abuse prevention has something we can start to work with. Information, facts, programs, that offer you a positive beginning. The starting place it seems to me would be with the individual, each of us, you, me, all of us. Write to this address. If enough of us start to work now we can solve the problem of drug abuse once and for all."

Visual

--Cuts from various types of persons, some celebrities, who each make a statement on the drug problem

*Edited from 60-second to 30-second version