A study examined the effectiveness of various formats for anti-drug messages on high school students. Subjects were 342 high school students from Kentucky, divided into drug user and non-user groups. Four different messages were tested, varying medium (video and print) and style of presentation (expository and narrative). Depending on the subjects' drug use patterns and attitudes toward using drugs, the messages were either consistent or inconsistent with their attitudes and/or behavior. Results indicated that anti-drug messages can be targeted at attitudes or behaviors, and thereby at different groups of users, by manipulating medium and style of presentation. (Two tables of data and three figures are included; 25 references are attached.) (Author/SR)
THE INFLUENCE OF ANTI-DRUG MESSAGES ON ATTITUDE-BEHAVIOR CONFLICTS

Mary T. Rogus
Doctoral Candidate
School of Journalism
107 Grehan Building
Lexington, KY 40506-0042
(606)257-4363

R. Lewis Donohew
Professor
College of Communications
227 Grehan Building
University of Kentucky
Lexington, KY 40506-0042
(606)257-5588


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ABSTRACT

This study examines the effectiveness of various formats for anti-drug messages on high school students. The researchers test four different messages, varying medium and style of presentation. Depending on the subjects' drug use patterns and attitude toward using drugs, the messages are either consistent or inconsistent with their attitude and/or behavior. The results indicate that anti-drug messages can be targeted at different groups of users by manipulating medium and style of presentation.
INTRODUCTION

The relationship between attitudes and behavior has been the focus of much research by social scientists. The general model which guides most of this research suggests that attitudes are in some way predictive of behavior. However, the empirical research into this relationship has yielded inconsistent results (Ajzen and Fishbein 1977). Other researchers suggest that there are situations where behavior changes first and attitude change follows after the act (Krugman 1965, 1986).

There is clearly a complex relationship between these two constructs—a relationship that allows for situations when a person's attitudes and behaviors are in conflict. Various consistency theories (Heider 1958, Osgood and Tannenbaum 1955, Festinger 1957) suggest that people are uncomfortable with this inconsistency and may seek to reduce it by modifying either behavior or attitude. As part of the modification process, information is often sought. Marketing researchers have discovered that messages can be designed to tap into this information seeking process and use it to their advantage (Berkowitz 1986).

A similar approach could be used in the development of substance abuse public service announcements. Flay and Sobel (1983) state that one of the primary reasons most anti-drug campaigns are not effective is because they are not targeted at a specific audience. It would make sense that drug users who have a negative attitude about their drug use and non-users who have a positive attitude about drug use would be prime targets for anti-drug messages. These are people who are most likely to be seeking information about drug use and therefore
uncomfortable state they may be susceptible to influence.

This study examines the effectiveness of various formats for anti-drug messages on high school students. Depending on the subjects' drug use patterns and attitudes toward using drugs, the messages are either consistent or inconsistent with their attitudes or behavior. The key research question is whether one or more messages can be found that attract the attention and interest of the target groups.

**ATTITUDES AND BEHAVIOR**

Two of the more prominent researchers into the relationship between attitude and behavior, Ajzen and Fishbein (1977), reviewed 40 years of attitude-behavior research. They found that even under what they describe as high correspondence between behavior or behavioral intention measures and attitude measures, correlations between attitude and behavior only averaged between .5 and .7. Under less than ideal measurement conditions, studies of attitude and behavior yielded relatively low correlations and highly inconsistent results (Ajzen and Fishbein 1977). Ajzen and Fishbein (1977) found the strongest relationships between the two when measurements of attitude toward a specific act, such as a subject's attitude toward smoking marijuana, and the behavioral measurement of that act were exactly the same. But even in studies which used measures with this one-to-one correspondence, there was still a high level of discrepancy between attitudes and behavior.

Clearly, product advertisers are trying to create this discrepancy at a low level. Their goal is to develop a need for a product category and then create a positive attitude toward their specific brand so that the buyer acts by purchasing their product.

Krugman (1965, 1966, 1986) and others have suggested that in some
this process as low involvement learning. A person’s perception is influenced over time by repeated exposure to a message. This perception leads to behavior, such as purchasing a product, and the positive attitude toward making the purchase actually develops after the act (Krugman 1965).

Persuasion researchers have found that counterattitudinal advocacy can be a very effective way to change attitudes because it requires people to behave publicly as if they support something they do not necessarily believe in (Brehm and Cohen 1962, Miller and Burgoon 1973, Reardon 1981). The attitude change will follow the public behavior so the person can reduce inner conflict. During the process where attitude change is taking place, the person feels some dissonance because of the discrepancy between attitude and behavior.

Consumer behavior researchers have found that a similar type of dissonance often occurs after impulse buying, or between a purchase decision and delivery of the product (Bagozzi 1982, Berkowitz 1986). During this period the consumer may seek out information which confirms that he or she made a good decision or helps him justify cancelling the purchase (McGuire 1976). An automobile manufacturer found that sending letters to buyers who had recently purchased cars but had not taken delivery yet reduced the number of cancelled orders by nearly 50 percent. The letters reinforced the purchase act by telling the customer what a good decision he or she had made and pointing out the best aspects of the car purchased (Berkowitz 1986).

ATTITUDES, BEHAVIORS AND MESSAGES

Thus, there are two relationships between attitudes and behavior to be considered. In the first case, the person has a positive attitude toward the act, but has not yet engaged in the behavior. In the second
his or her attitude about it. Since these two cases are not usually considered together in attitude research because they represent two different models of the attitude-behavior relationship, one can only guess at the differential impact of messages on these two groups. Since behavior, particularly drug use, is probably more difficult to change than an attitude, one would hypothesize that a message would be received better when it agrees with the subject's behavior but is inconsistent with his or her attitude, than when it is consistent with an attitude but inconsistent with behavior.

Message Salience and Involvement

The message is going to have less relevance for those whose attitudes and behaviors are completely consistent or completely inconsistent with the message. An anti-drug message, for example, is of little use to someone who does not use drugs and has a negative attitude toward using drugs. At the other extreme the person who is a drug user and has a positive attitude about that behavior may avoid the message altogether as cognitive dissonance theory suggests (Festinger 1957). Even if the drug user does pay attention to the message seeking novel or interesting information, the message has less relevance for this person because he or she is not actively seeking drug use information to solve an attitude-behavior conflict.

The idea of message relevance, or salience, is important for the anti-drug messages being considered in this study. The objective in most anti-drug PSAs is to go beyond influencing perceptions to the point of creating a conscious change of drug-use attitude and/or behavior. It is not enough to simply create a negative image of drugs in the same way many product advertisements attempt to create a positive image for their product. McGuire (1976) and Bettman (1979), in their models of
of information processing is necessary to bring about conscious attitude or behavior changes. This requires involvement with the message, and a key antecedent to involvement is message salience (Lastovicka and Gardi,er 1979). For subjects in an inconsistent attitude/behavior state, the anti-drug message should have high salience because these subjects should be seeking information to reduce their conflict.

Greenwald and Leavitt (1984, 1985), Petty, Cacioppo and Schumann (1983), and Mitchell (1983), have all developed and tested involvement models of information processing for advertising. These models support a positive relationship between level of involvement and level of information processing. The researchers found a strong relationship between high involvement and more extensive information processing.

Message Format and Style

There may also be involvement generated by the formal features of the messages themselves. Four message formats will be used in the study: 1) expository video, 2) expository print, 3) narrative video and 4) narrative print. Much of the political communication and journalism research (Patterson and McClure 1976, Graber 1980, Robinson and Sheehan 1983) points out that the print medium tends to be more involving because it requires more participation from the subject than does television. The information gain from newspapers consistently ranks higher than television. From this we might expect the print messages to be rated higher than the video messages because they may be perceived as better serving the information needs of the subjects.

In terms of message style, Donohew (1981) found narrative print messages increased the arousal of subjects, while expository messages
of involvement with the message. This effect is probably intensified with television because of the expectations viewers have of a story format. Most entertainment television, and even television news, is presented with a narrative format that the viewer, who only has one chance to follow the action, can easily keep up with. Thus, the expectation is that the narrative format will be more involving and therefore rated higher than the expository format.

**METHODOLOGY**

To test different message formats an experimental design was developed which randomly assigned drug users and non-users to one of four message conditions. The subjects were presented with the message which was then interrupted before they could finish reading or viewing it, and dependent measures of preference to continue and message evaluation were administered.

**Subjects**

342 high school students were drawn for the experiment from a pool of more than 900 Lexington, KY high school students who filled out a preliminary drug use questionnaire. The large subject pool was divided into user and non-user groups based on their responses to questions about marijuana use. Forty subjects from each group were randomly assigned to each of the four message conditions. A balance was maintained between males and females so gender effects could be tested.

**Variables**

There are three independent variables considered in this analysis:

1) **Level of Marijuana Use.** This was measured in the screening questionnaire with a 60 item instrument based on the work of a National Institute on Drug Abuse committee studying adolescent drug abuse (Lettieri 1981). It was administered confidentially and included information about other drugs and alcohol, but primarily focused on marijuana. Based on responses to this instrument, subjects were classified as users or non-users.
2) **Prior Attitude Toward Marijuana Use.** Following Ajzen and Fishbein's (1977) recommendation, the prior attitude toward drugs measure was very specific. As part of the screening questionnaire subjects responded to the following statement: "For me, smoking marijuana would be...", on a series of 5 Likert scales with adjective pairs including, good-bad, pleasant-unpleasant, valuable-worthless, unfavorable-awful and acceptable-unacceptable. The five responses were averaged to generate a prior attitude score. The sample was divided into positive and negative attitude groups by a median split.

3) **Message Condition.** Experimental message materials were developed for this study. The basis for the messages was a NIDA pamphlet, "For Kids Only: What You Should Know About Marijuana". For the expository print condition, the pamphlet was presented basically in its original form with factual text and illustrations. The text was rewritten into a more dramatic story form for the narrative print condition, while retaining the same factual information and approximately the same length. For the video conditions, the narrative and expository print messages were videotaped. A professional announcer recorded the text of the print messages and the same illustrations were used for pictures. The television message was kept simple to avoid confounding of effects.

There are two dependent variables tapping the subjects' interest in the message:

1) **Preference to Continue.** The experimental materials were pretested to determine the approximate time high school subjects would require to read the print messages. Then an appropriate stopping point for viewers and readers was selected. After the message was interrupted, subjects were presented with the posttest questionnaire, and the first item asked them to indicate how much they wanted to continue exposure to the message on a 7-point scale with end points of "want very much to continue" and "want very much to stop".

2) **Message Evaluation.** Subjects were then asked to describe how they felt about the message on a series of 5 7-point scales with adjective pairs including good-bad, pleasant-unpleasant, valuable-worthless, understandable-not understandable. The responses were averaged to create an overall message evaluation score. The scales were analyzed individually to see if any substantial differences existed between the composite score as a dependent variable and the four separate scores. No real differences were found, so the mean score was used.

**Experimental Procedure**

Subjects were brought to a communications laboratory six to eight at a time. They were seated in carrels either facing the wall for the print conditions or facing the room and VCR for the video conditions. In the print condition, each carrel had a red and green light which
indicated when the subject was to begin reading, and when to stop. In the video condition the experimenter started and stopped the tape machine. As has been mentioned, reading or viewing of the experimental message was halted about three-quarters of the way through. Then subjects were given the paper and pencil posttest which included the dependent measures, as well as several other items to be used in future analyses. The drug-use scale was also readministered to double-check that those classified as users and non-users were still correctly classified.

RESULTS

Table 1 and Table 2 show the results of three-way analysis of variance procedures on the two independent variables, preference to continue and message evaluation.

insert Tables 1 and 2 here

It is interesting to note that different main effects are significantly related to preference to continue as compared with message evaluation. The only significant main effect for the preference variable is message condition. However, message condition does not produce a significant main effect for message evaluation, while drug use and prior attitude do.

Preference to Continue Exposure

Looking at the analysis for preference to continue, Table 1 shows a significant interaction between message condition and prior attitude. Although this interaction makes the main effect of message less important, it is still worth considering because of our predictions about the inherent involvement different message formats might have. Overall, the message most preferred was the narrative
(m=3.659) (Scale ranged from very much want to continue--1 to don't want to continue at all--7). As predicted the print messages were significantly more involving than the video messages (print m=2.407 vs. video m=3.321)*. However, the style of presentation, expository vs. narrative depended on which medium the message was presented in. Although the mean differences were not significant at the .05 level, they are still interesting and worth looking at. In the print condition the narrative (m=2.238) showed a higher preference to continue than the expository (m=2.578) as predicted. Comparing the video conditions however, the expository style (m=2.963) was more involving than the narrative (m=3.659), counter to predictions.

The significant interaction for preference to continue is a two-way interaction between message condition and prior attitude. Figure 1 depicts the interaction graphically. For three of the message conditions, the preference to continue is slightly higher when the subject has a negative prior attitude toward drugs which is an attitude consistent with the message. Thus, despite the fact that the message was hypothesized to have more relevance for subjects with positive attitudes toward drug use, it is actually slightly less involving for them. The one exception is the expository print condition which increases in preference to continue significantly between subjects with negative prior attitudes towards using drugs (m=2.822) and subjects with positive prior attitudes (m=2.289). The only other significant

*All mean comparisons were tested for significance using Scheffe's test of pairwise comparison with an Alpha value set at .05.
difference between positive and negative prior attitude groups is for expository video which significantly decreases from the negative group (m=2.558) to the positive group (m=3.421). It also should be noted that print messages tested as significantly more involving for subjects with positive prior attitudes towards using drugs (m=2.289, 2.555) than did the video messages (m=3.421, 3.875).

Message Evaluation

Table 2 indicates two significant main effects for the message evaluation dependent variable: drug use and prior attitude. Users tended to evaluate the message significantly higher than non-users (m=2.5 versus m=2.93) (Scale ranged from positive adjectives--1 to negative adjectives--7). However, those with a negative attitude toward drugs evaluated the message significantly higher than those with a positive attitude (m=2.57 versus m=2.97). This suggests the opposite of what was predicted. The messages may have more influence or subjects whose attitudes are consistent, but behavior inconsistent with the message than vice-versa. There is a significant three-way interaction among drug use, prior attitude and message condition which clarifies this relationship somewhat.

Figures 2A and 2B depict the three-way interaction with the overall mean evaluation (m=2.77) plotted. The first thing which is immediately noticeable in the graph is that all the means for the negative attitude group on both figures cluster around the grand mean with the exception of the user-expository print condition which is more negatively evaluated than the other conditions. The only significant difference among these means is between the user-expository print
condition (m=3.03) and the non-user narrative video, non-user narrative print conditions and user expository video (m=2.41, 2.39, 2.46). So generally, when the message is consistent with the subject's attitude, message condition and behavior (use vs. non-use) have little influence on the evaluation of the message. The noted exception is that one designing messages would want to avoid the expository print message format when targeting drug users who have negative attitudes about their use.

Looking at the positive attitude group, those whose attitudes are inconsistent with the message, there are several interesting differences. For the toughest group to target, those who use drugs and have a positive attitude about it, all the messages were evaluated more negatively than the grand mean, with the exception of expository print. While user subjects with negative attitudes about drug use ranked this message the lowest (m=3.03), users with positive attitudes ranked it highest (m=2.79). The widest variations in evaluation of message condition occur for the non-user group that has a positive attitude toward using drugs. For this group the narrative print (m=2.58) and expository video (m=2.47) are ranked significantly higher than narrative video (m=3.18) which is also evaluated significantly higher than expository print (m=4.19).

It is interesting to note some of the significant differences between users and non-users who have positive attitudes toward their drug use. Users rank the expository print message the highest (m=2.79), while non-users ranked it the lowest (m=4.19). However, for the video message the effect was just the opposite, users ranked the expository format low (m=3.04) while non-users ranked it significantly higher (m=2.47).
DISCUSSION

These results have clear implications for organizations which design anti-drug messages. Varying the medium and format of presentation of anti-drug messages does create variations in involvement and evaluation by potential target groups. It is important to distinguish whether the objective of the message is to change an attitude or behavior because it was found that message conditions were evaluated differently depending on whether it was the subject's attitude or behavior that was inconsistent with the message.

When the target group is users with a negative attitude toward using drugs, the narrative print and expository video messages receive the highest evaluations and preference to continue responses. It appears that this group may be more receptive to messages than the other target group. Those who had a negative attitude about drugs consistently rated the messages higher on both dependent variables with the exception of the expository print condition. This seems somewhat counter-intuitive because the messages are inconsistent with the user's behavior which would seem more resistant to change than an attitude. However, if one considers that most advertising of this type follows Fishbein and Ajzen's model that attitudes predict behavioral intention, which in turn predicts behavior, perhaps these results are not so unexpected.

Subjects who watch television or read magazines and newspapers are used to messages that appeal to their attitudes. So when the message is consistent with an attitude they already hold, the reception situation is comfortable for them. Perhaps they feel less pressure to be persuaded, because they already agree with the objective of the message. The process of attitude influencing behavior may be one that
occurs outside the context of message processing. Later when the subject thinks about the message and/or his or her attitude toward using drugs the attitude-behavior conflict is dealt with.

The situation for the non-user with a positive attitude toward drugs then becomes the most uncomfortable when an anti-drug message is presented. This person is familiar with appeals directed at his or her attitudes and is presented with a message which is counter-attitudinal, but is consistent with behavior. The widest variations in involvement and message evaluation occur for this group. It is difficult to pin down the best message format because the results on involvement and evaluation do not agree completely. In terms of involvement, the narrative and expository print conditions generated the highest preference to continue rankings. However, when message evaluation is considered the expository print message receives the lowest evaluation and expository video, along with narrative print are positively evaluated. The only clear indication from this group is that a narrative video format is not the way to go.

Both target groups seem to respond to the narrative print message relatively well, so if only one message can be developed, resources might be channeled toward pamphlets which could be distributed in the schools or mailed directly to the child. However, if video messages are going to be developed, the expository format would be likely to receive more attention from target groups. When determining message content the target group’s attitude should be kept in mind. In the case of users with a negative attitude toward using drugs, the messages should serve to reinforce that attitude and perhaps start the person questioning why his or her behavior is not compatible with the anti-drug attitude. For non-users with a positive attitude toward drugs, persuasion is vital. These are the people who have not started using
drugs yet, but are most likely to at some time in the future. A simple 'just say no' approach is not going to change their attitude. These people need reasons to change their attitude toward drug use.

While the target groups with behavior-attitude conflicts offer the best opportunity for anti-drug messages, they unfortunately do not make up the largest group of drug users. Most drug users also have positive attitudes toward their drug use, so anti-drug messages run counter to both attitudes and behavior. The results from this study indicate if any messages are going to reach these people, the expository print message format has the best chance.

Finally, some caveats about the results of this study are needed. First it should be noted that the video messages were not true television messages in the sense of making the best use of the medium. They were essentially video versions of the print messages. Since subjects are accustomed to slick, fast-paced advertising and entertainment presentations on television, the video messages may have been disappointing and therefore less effective than they could be. This research should be replicated using existing anti-drug PSAs or created messages that make full use of the production capability of the medium.

A second problem with this study is the small cell sizes for the target groups. Since this study was set-up initially to consider other variables, the subjects were not evenly distributed according to attitude-behavior relationship across the conditions. Subjects were much more likely to have attitudes and behaviors that coincided rather than conflicted. Thus, some of the cells for the three-way interaction of drug-use by prior attitude by message condition on message evaluation are too small (under 10) to draw more than tentative conclusions from.
REFERENCES


### TABLE 1
**ANOVA Preference to Continue on Drug Use, Message Condition and Prior Attitude**

<table>
<thead>
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<th>Main Effects</th>
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<th>Interactions</th>
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<td>Use x Message x Attitude</td>
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$R^2$ .18

### TABLE 2
**ANOVA Message Evaluation on Drug Use, Message Condition and Prior Attitude**

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<td>.009</td>
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$R^2$ .135

### Figure 1
**PREFERENCE TO CONTINUE**
Message Condition by Prior Attitude

Preference

Not Continue

Positive

Continue

Negative
Figures 2A and 2B
MESSAGE EVALUATION
Drug Use by Message Condition by Attitude

NON-USERS

users

Exp Print
Nar Video
Exp Video
Nar Print
Grand Mean

Prior Attitude

Positive

Negative

Positive

Negative

Exp Print
Nar Video
Exp Video
Nar Print
Grand Mean

Prior Attitude

Positive

Negative

2.77

2.5

2.0

3.0

3.5

4.0

4.5