

Adolescent Response to Anti-Drug Public Service Announcements: A Segmentation Approach

Denise D. Schoenbachler, Marketing, Northern Illinois University
Dr. Douglas J. Ayers, Marketing, Northern Illinois University
Dr. Geoffrey L. Gordon, Marketing, Northern Illinois University

Abstract

The research reported in this article focuses on segmenting the adolescent audience for anti-drug PSAs according to propensity for drug use and reaction to anti-drug PSAs. Four dimensions of the personality trait sensation seeking are utilized to differentiate adolescents with regard to actual use and intentions to use drugs as well as reactions to anti-drug PSAs. The results of the research indicate that one dimension in particular, disinhibitionism, is positively linked to both use and intention to use drugs. Additionally, adolescents with higher levels of disinhibitionism tend to react more negatively to anti-drug PSAs.

Introduction

The 1992 National Household Survey on Drug Abuse (NIDA 1992) estimates that approximately 25 percent of individuals ages 12-17 and almost 60 percent of those ages 18-25 have used illicit drugs at some time. The implications of these statistics are frightening, especially when considering the extensive and expensive efforts made in recent years to educate young people about the dangers of illicit drug use. The use of public service announcements (PSAs) has been an important element in this educational effort. Since 1987, The Partnership for a Drug-Free America has used almost \$800 million of donated media time and space to air anti-drug PSAs (Forbes, February 4, 1991).

Despite the continued use of anti-drug PSAs as part of the anti-drug effort (Bell 1992; Cleland 1994), there has been little formative research performed pinpointing who is and how to reach the appropriate target audience (Atkin and Freimuth 1989; Rogers and Storey 1987). As a result, many past anti-drug PSA campaigns have been unsuccessful in bringing about desired attitude or behavior changes in young people (Black 1988; Flay and Sobel 1983), even though there is growing evidence that some

PSA campaigns (i.e., cancer prevention) have been proven to be very effective (Wooden 1994). The Advertising Research Foundation (1991), in the first longitudinal study designed to isolate and measure the effect of PSA advertising alone, concluded that PSA campaigns can increase awareness, change beliefs, influence behavioral intentions and influence actual behavior. Black's (1988) report of the results of the first wave of a multi-wave longitudinal study to evaluate the Partnership for a Drug-free America campaign found minimal change for the teenage population. Black concluded that, "the teenage population is going to require a greater communication effort" (p.9).

Atkin and Freimuth (1989) argue that anti-drug PSAs have historically followed the prevailing public health campaign genre in terms of message appeals. These appeals have primarily focused on attempting to scare young people into attitude and behavior change through the use of physical threat appeals (Kizziar and Hagedorn 1979; King and Reid 1990; Schoenbachler and Dsilva 1992). Unfortunately, as Atkin and Freimuth (1989) note, these messages tend to be produced in a haphazard fashion

based almost solely on the whims of copywriters and/or artists. Typically, only minimal background information about the target audience is gathered beforehand and even less is used in designing message appeals. By conscious default, the normative standards of health campaign messages become the prevailing driver of message creation (Atkin and Freimuth 1989).

The purpose of the current research is to address some of the problems associated with anti-drug PSA campaigns. To do so, a careful examination of an appropriate target audience, as well as this audience's response to anti-drug messages will be first undertaken. As with the marketing of any product or service, the creation of an effective advertising campaign (in this specific study, an anti-drug PSA campaign) is heavily dependent on first gaining an in-depth understanding of the specific target audience (young people who might be predisposed to use drugs). Identifying and understanding key characteristics of and traits associated with those "at-risk" is a necessary precursor to developing an effective message appeal. In addition to identifying an appropriate target audience for anti-drug PSAs, there is a need to determine if select portions (segments) of the overall audience differ with respect to their response to anti-drug messages. If different response characteristics can be identified, and groups satisfy the criteria for effective segmentation, demarketing efforts could more effectively and efficiently be administered.

Targeting The "At Risk" Audience

Targeting anti-drug messages first requires specification of the messages' goal. This research focuses on prevention PSAs: those designed with the goal of creating a negative "climate of opinion" among young people with respect to engaging in illicit drug use. Prevention suggests reaching and affecting a targeted audience before drug use occurs and/or strong attitudes toward drug use have been formed. Therefore, the focus is on individuals who either have not yet engaged in drug use or, if so, have not yet experimented heavily with drugs. Initial experimentation with drugs usually occurs during the final three years of high school (Thorne and DeBlassie 1985); therefore, an appropriate audience for prevention PSAs is young adolescents between the ages of 11 and 15. These teens are beginning to form attitudes about drug use but most have not yet experimented heavily with drugs.

Sensation Seeking

Designating young adolescents, in general, as an appropriate target audience is only a preliminary step toward identifying the desired "at risk" audience for

prevention PSAs. A second step is identifying characteristics that put the adolescent "at-risk" for using drugs. One such characteristic, sensation seeking, has been identified as a potential factor useful in separating out teens at-risk for drug use. Sensation seeking is generally considered a biologically-based personality dimension which directs an individual's varying need for arousal and stimulation (Zuckerman 1971; 1983). The concept is based on Wundt's (1874) theory that individuals have an optimal level of stimulation, which explains the curvi-linear relationship between affective reactions and intensities of stimulation. Zuckerman (1971) contends that individuals have an optimal state of arousal and that they will actively seek or avoid stimulation to remain at the optimal level. Individuals vary greatly in terms of the intensity of their need for arousal. At the one extreme are the high sensation seekers who are more difficult to arouse and therefore require greater stimulation to reach their optimal level of arousal. At the other extreme, low sensation seekers are those who are easily aroused and thus reach their optimal level with less stimulation (Zuckerman 1987). As a result, the high sensation seeker is more receptive to novel stimuli, while the low sensation seeker greatly prefers more familiar stimuli (Zuckerman 1978; 1983).

Over the past few years, researchers have confirmed the strong, positive relationship existing between level of sensation seeking and drug use (Zuckerman, Neary and Brustman 1970; Zuckerman 1971; Zuckerman and Neeb 1980; Schierman and Rowland 1985; Donohew 1988; Andrucci, Archer, Pancoast and Gordon 1989; Donohew, Helm, Lawrence and Shatzer 1990). High sensation seekers have been found to be between two and nine times more likely than low sensation seekers to engage in substance abuse in virtually all research examining the relationship.

Donohew, Finn and Christ (1988) provide evidence that sensation seeking can be incorporated into the activation theory of information exposure (Donohew, Palmgreen and Duncan 1980; Donohew, Finn and Christ 1988) which suggests that individuals attend to and are persuaded by information that satisfies the individuals' need for arousal. Based on the assumption that motivation for exposure to a message (and consequent persuasion) involves both a cognitive need for information and a physiological need for stimulation, the theory suggests that messages which fail to attain the needed level of stimulation as well as those which exceed the needed level of arousal are not attended to. High sensation seekers tend to require more intense information sources and are more likely to find communication messages below the optimal stimulation level. In this scenario, the high sensation seeker seeks out

more exciting stimuli. Low sensation seekers, on the other hand, are more likely to turn away from intense messages and seek out less stimulating messages.

Dimensions of Sensation Seeking

General sensation seeking can be further broken down along four distinct dimensions which serve to differentiate specific tendencies of sensation seeking (Zuckerman 1971; Rowland and Franken 1986). The dimensions of sensation seeking include: 1) Thrill and adventure seekers; 2) Disinhibitionists; 3) Experience seekers; and 4) Boredom susceptibility. The sensation seeker, in his/her quest to fulfill the need for stimulation, may seek out various forms of sensation depending on which of the four dimensions dominates. Although the high sensation seeker may exhibit elements of all dimensions, he/she is likely to find one dimension dominating the need for sensation.

The thrill and adventure seeker expresses a strong desire to engage in outdoor sports and other activities which involve an element of speed or danger. Thus, the sensation seeker who tends to also be a thrill and adventure seeker will seek stimulation through exciting activities such as bungee jumping, sky diving or simply riding the highest, fastest roller coaster.

The disinhibitionists may be aptly labeled the "swingers." People high on the disinhibition factor express a loss of social inhibition and tend to like heavy social drinking, wild parties, gambling and variety in sexual partners. These type activities provide the disinhibitionist with the stimulation necessary to reach his/her optimal level of arousal.

The experience seeking dimension can be described as the "hippie" factor. The experience seeker enjoys experience for its own sake and includes exhibitionism in dress and behavior as well as a flouting of irrational authority. The experience seeker enjoys thinking, tends to be creative, and possesses a strong imagination.

Finally, the boredom susceptibility factor suggests a dislike for repetition of experience and routine work, dull people, and a preference for exciting people and variety. This factor differs somewhat from the others in that stimulation is sought by avoidance rather than active pursuit of some type. The individual high in boredom susceptibility avoids dull or routine experiences, but does not seek out any specific type of activity or experience to reach his/her desired level of stimulation (Zuckerman 1971; Zuckerman 1978; Pearson 1971).

Dimensions and Adolescent Drug Use

The existence of the four dimensions associated with sensation seeking suggests that relationships between drug use and individuals' need for sensation seeking may be better understood by examining individually the four dimensions, rather than viewing sensation seekers as one homogeneous group. In essence, sensation seekers can obtain the necessary stimulation through engaging in varied activities, depending on the direction of sensation seeking. Similarly, the dimensions, as opposed to sensation seeking, may differentiate attention to information as predicted by the activation theory of information exposure. The theory suggests an audience will turn away from messages above/below the optimal level of stimulation. The dimensions may help explain more clearly what elements make a message above/below the optimal level.

To date, research on the relationship between drug use and the four sensation seeking dimensions has been limited. The focus has been placed on examining behaviors typical of each dimension thus providing direction for postulating which, if any, sensation seeking dimensions should be related to drug use. The experience seeking and disinhibitionist factors appear to be the most likely candidates for identification of the "at risk" segment of young adolescents. The experience seeker might experiment with drugs for the novel experiences illicit drugs provide. This desire on the part of the experience seeker to experience new sensations may, in part, explain the "boomerang effect" found in response to anti-drug messages employing high levels of threat. Both Feingold and Knapp (1977) and King and Reid (1990) found that as the level of threat in an anti-drug PSA became more intense, attitudes toward drug use became more favorable, fewer counter-arguments were given, and behavioral intention to use drugs was more positive. Even the well-known Partnership PSA with an image of a fried egg and the line, "this is your brain on drugs" has been twisted by some drug users as in "Let's go fry an egg." Thus, the sensations illustrated in high threat PSAs may appear to be interesting new experiences and subsequently induce young adolescents to try illicit drugs, rather than achieving the desired objective of presenting illicit drug use as a frightening situation which one should avoid.

The disinhibitionist seeks sensation through uninhibited actions and relationships. Thus, he/she may seek ways to become more uninhibited and would use drugs as a means to help "loosen up." The use of illicit drugs, particularly in a group setting, would further encourage and stimulate the wild parties and variety in sexual partners favored by the disinhibitionist. This postulate suggests that current,

anti-AIDS PSAs which feature use of drugs or alcohol as precursors to uninhibited sex may also produce "boomerang effects" for the individual high in disinhibitionism.

Dimensions as a Segmentation Base

Theoretically then, the sensation seeking dimensions could serve as ideal targeting variables for anti-drug PSAs. The targeting value of sensation seeking and its dimensions is dependent, though, on the viability of this market segment. Effective market segmentation requires a heterogeneous market, identifiable, homogeneous segments, sizability and reachability.

With respect to drug use, the context of this research, sensation seeking and its dimensions meet the first criterion of a viable segment. Adolescents differ with respect to whether they "need" substances and which type is needed. Not every adolescent engages in drug use and the nature of use can vary. Some teens report using alcohol but not marijuana while others use a number of different drugs. The "market" is heterogeneous.

One of the objectives of the present research is determination of the sensation seeking dimensions as identifiable, homogeneous segments in the context of drug use. The usefulness of the dimensions in dividing individuals into segments, each with a homogeneous need, is yet to be determined. Prior research has determined that overall sensation seeking is useful in segmenting young people's propensity to use drugs as well as actual drug use. The present research aims to determine if one or more of the dimensions can similarly be used to identify homogeneous groups in terms of actual drug use.

Sizability suggests that a segment be large enough to warrant devoting resources. The sizability requirement traditionally has been used in a product/service context where a segment is judged in terms of profit potential. In an anti-drug context, the issue is whether a segment is large enough to warrant the costs of efforts at prevention. Ethically, it is difficult to suggest that any at-risk audience is not sizable enough to warrant efforts at prevention. Realistically, the sensation seeking dimensions must be sizable enough to develop a specific anti-drug mix to reach the audience. The sensation seeking dimensions follow a normal distribution in the teen population (Zuckerman 1971; 1983), thus the sheer numbers of adolescents characterized as high or low in each dimension is large.

The last and possibly most critical requirement for an effective segment in this context is reachability. Do the dimensions differentiate media preferences? program preferences? message execution element preferences?

Theoretically, the activation theory of information exposure would suggest that preferences vary by dimension. Evidence, although limited, supports this notion.

Schoenbachler, Boguslaw and Ganas (1991) found that attention to programs, commercials and PSAs differed by sensation seeking dimension. Experience seeking in particular emerged as an important dimension in differentiating attention to television content. High experience seekers attended more to programs, embedded commercials and PSAs determined in pretests to be high in sensation value. Low experience seekers attended more to low sensation value programs and embedded elements. This pattern held true for the remaining dimensions as well.

Palmgreen, Lorch, Donohew, Helm, Baer and Dsilva (1991) found differentiation by sensation seeking for popular television programs. Specifically, high sensation seekers were more likely to prefer and attend to off-beat comedies with novel formats or characters while low sensation seekers chose more conventional situation comedies. Low sensation seekers also preferred family dramas and mini-series whereas high sensation seekers rated action/adventure, suspense and horror programs higher. Analysis of these findings by dimension revealed similar differences for highs and lows on each dimension.

Rogus, Palmgreen and Everett (1990) used focus groups to identify differences in sensation seekers' preferences for varying formal features (production techniques) in commercials. High sensation seekers preferred harder rock groups and low sensation seekers mentioned top 40 music more often. Arnett (1991) found further differentiation by dimension for liking heavy metal music. High experience seekers and disinhibitionists were significantly more likely than lows to like heavy metal music.

Rogus, Palmgreen and Everett (1990) also found differences in high sensation seekers' desire to "be left hanging" versus lows' desire for closure in ads. High sensation seekers used terms such as unpredictable, new, offbeat, creative, unusual, abstract to describe what they looked for in a good ad. Low sensation seekers used sentimental, storylines and fantasy.

In addition, high and low sensation seekers differ with respect to attention to advertisements with/without a motivational introduction (Donohew, Palmgreen, Lorch, Rogus, Helm and Grant 1989), choice of entertainment alternatives (Schierman and Rowland 1985), and narrative versus expository and print versus video presentation of information (Donohew, Helm, Lawrence and Shatzer 1990).

This evidence suggests, therefore, that reaching high and low sensation seekers and high and low sensation seeking dimensions requires a particular media mix as well as formal production features. Emerging evidence (Schoenbachler, Boguslaw and Ganas 1991) also suggests different media preferences by dimension.

Hypotheses

Categorization by overall level of sensation seeking (high versus low) has been found to be an effective basis for differentiation between adolescent responses to anti-drug messages; high sensation seekers are more negative toward and less responsive to anti-drug messages than low sensation seekers (Schoenbachler 1993). The previous discussion suggests that use of the four sensation seeking dimensions (especially experience seeking and disinhibitionism) may prove more beneficial in specifically identifying the "at-risk", young adolescent audience than use of a single grouping of all high sensation seekers. Subsequently, if found to be a relevant basis for establishing sub-groupings among sensation seekers, this identification process should facilitate more productive efforts to effectively reach the most "at risk" group(s) with the desired message(s).

One goal of the present research was to ascertain if significant relationships exist between the four dimensions of sensation seeking and drug use among young adolescents. Based upon the earlier discussion of sensation seeking dimensions and drug use, the following hypotheses can be stated:

- H1:** There is a significant positive relationship between the sensation seeking dimension, experience seeking, and young adolescent drug use.
- H2:** There is a significant positive relationship between the sensation seeking dimension, disinhibitionism, and young adolescent drug use.
- H3:** There is no significant relationship between the sensation seeking dimension thrill and adventure seeking and young adolescent drug use.
- H4:** There is no significant relationship between the sensation seeking dimension boredom susceptibility and young adolescent drug use.

The proposed positive relationship between the two specific dimensions and substance use suggests that experience seeking or disinhibitionism would be more meaningful targeting bases than utilization of one overall sensation seeking base. The ultimate value of using these dimensions as targeting variables depends, in part, on whether such categorization by dimension can differentiate responses to anti-drug messages among the overall group of sensation seekers.

In addition to examining sensation seeking dimensions and drug use, this research sought to determine the relationship between sensation seeking dimensions and responses to anti-drug messages. Based on understanding the nature of the dimensions posited as predictors of drug use, the following hypotheses regarding experience seeking are presented:

- H5a:** As their level of experience seeking increases, young adolescents will have stronger emotional responses to PSAs.
- H5b:** As their level of experience seeking increases, young adolescents will produce more counter-arguments in response to PSAs.
- H5c:** As their level of experience seeking increases, young adolescents will have an increasingly negative attitude toward the PSA.
- H5d:** As their level of experience seeking increases, young adolescents will indicate a more favorable attitude toward drug use.
- H5e:** As their level of experience seeking increases, young adolescents will indicate a stronger behavioral intention to use drugs.

Disinhibitionism, the second dimension with a predicted relationship to substance use, may also moderate response to anti-drug messages. The following hypotheses outline the predicted responses of the disinhibitionist:

- H6a:** As their level of disinhibitionism increases, young adolescents will have stronger emotional responses to PSAs.
- H6b:** As their level of disinhibitionism increases, young adolescents will produce more counter-arguments in response to PSAs.
- H6c:** As their level of disinhibitionism increases, young adolescents will have an increasingly negative attitude toward the PSA.
- H6d:** As their level of disinhibitionism increases, young adolescents will indicate a more favorable attitude toward drug use.
- H6e:** As their level of disinhibitionism increases, young adolescents will indicate a stronger behavioral intention to use drugs.

Method

Subjects and Procedure

Three hundred seventy-one (371) middle school students participated in an experiment designed to test the above stated hypotheses. The participants came from a racially and culturally representative middle school, selected for its diversity. Interviews with the principal and teachers revealed that drugs were known to be available to students

and both parties expressed concern that virtually all students had been or would be exposed to drugs. *Drug and Crime Facts* (1988) reports teen drug exposure rates of over 85% for marijuana, 64% amphetamines, 51% cocaine, 51% tranquilizers and roughly 25% LSD or heroin. After obtaining parental permission, subjects participated in the study as part of their science classes. Subjects were assured both in writing and by the experimenters that their responses were completely confidential. Subjects were instructed not to write their names on any part of the booklet. Writing implements were provided so all markings would be identical. The scales, particularly the drug use measure, were designed to be difficult to be seen by a "neighbor." Upon completion of the experiment, subjects dropped the closed booklets in a box containing other booklets. Subjects were encouraged to shuffle the booklets in the box. Once the experiment began, no one touched the booklets except the subjects.

Subjects were given a booklet containing a print anti-drug PSA, a sensation seeking measure and dependent measures. Subjects were given one minute to look at the PSA and were then asked to complete the booklet during class time. Two PSAs were created specifically for this study, and were designed to mirror PSAs currently used in the media. Preliminary analyses revealed no differences in response to the two PSAs by sensation seeking dimension. Thus, it is likely that similar findings would result from different message elements. The purpose of this research was not to evaluate specific message elements, but to understand response to PSAs. Thus, care was taken to use realistic PSAs where responses would mirror actual responses to PSA messages. Although a pretest-posttest design might better assess subjects' before/after response to the PSA, the primary purpose of the study was a comparison across dimension segments, rather than within. Given the size and nature of the school sample used, there was an over riding concern that testing effects would confound any pretest-posttest measures.

The sensation seeking dimensions were measured using Zuckerman's Sensation Seeking Scale Form V (Zuckerman, Eysenck and Eysenck 1978). This scale contains 40 forced choice items, with 10 items representing each of the dimensions of sensation seeking. Subjects choose one of two statements which better reflects their feelings. For each item pair, one item indicates a high level of the dimension and one item indicates a low level of the dimension. The overall dimension score is determined by assigning one point for each high dimension response and zero points for low dimension responses. Thus, the score on each dimension can range from 0 to 10. The Sensation Seeking Scale contains three items which explicitly refer to drug use. These items were eliminated for analysis purposes to avoid the possibility of

inflated correlations. One of the drug-related items was removed from the disinhibitionism sub-scale and two of these items from the experience seeking sub-scale.

Although developed with a college population, the SSS V and the four subscales have been successfully applied in numerous recent studies to the adolescent population (Andrucci, Archer, Pancoast and Gordon 1989; Arnett 1991; Donohew, Helm, Lawrence and Shatzer 1990; Jefferson and Johnson 1991; Newcomb and McGee 1991; Smith, Ptacek and Smoll 1992; Stacy, Newcomb and Bentler 1991; White, Labouvie and Bates 1985). Reported reliabilities for the overall scale with adolescents range from .83 to .89 and for the subscales from .56 to .82. Cronbach's coefficient alphas for this study were .86 for the overall scale, .71 for Thrill and Adventure Seeking, .57 for Boredom Susceptibility, .72 for Disinhibitionism, and .63 for Experience Seeking. Nunnally (1978) notes that reliabilities of .50 or .60 are not uncommon in social science research. Peter (1979) suggests that less strict reliability requirements, in the .4-.7 range, may be acceptable for marketing research where the focus is on groups rather than the individual.

Intercorrelations between the subscales illustrate that the four dimensions tap into one construct, sensation seeking, but are somewhat independent. Positive, significant correlations between the dimensions were expected, but should not be so related to suggest they are not independent. Experience Seeking was significantly correlated with Thrill and Adventure Seeking (.44) and Disinhibitionism (.32) but not Boredom Susceptibility (.14). Thrill and Adventure Seeking correlated with Disinhibitionism (.55) and Boredom Susceptibility (.17). Disinhibitionism correlated with Boredom Susceptibility (.19). The correlation values in this study are consistent with Zuckerman, Eysenck and Eysenck's (1978) examination of the subscale intercorrelations.

Further evidence of the subscales' applicability to the adolescent population is presented in Table 1.

Table 1 shows the highest factor loading for each scale item. The Thrill and Adventure Seeking subscale's nine items load on one factor, with the tenth item loading higher on a different factor. Similarly, the Disinhibitionism subscale items load on factor two, with two items loading higher on a different factor. In all cases, though, the items' second highest loading are on the expected factor. The Experience Seeking and Boredom Susceptibility subscales each had seven of ten items loading together. Although these subscales may not exhibit the strength of the Thrill and Adventure Seeking and Disinhibitionism subscales, the overall pattern provides support for the existence of the four dimensions of sensation seeking in

Table 1
Scale Items: Varimax Rotated Factor Pattern Loadings

Item Number	Factor 1 Thrill/Adventure Seeking	Factor 2 Disinhibition	Factor 3 Experience Seeking	Factor 4 Boredom Susceptible
23	.68			
16	.66			
17	.65			
3	.65			
28	.58			
21	.56			
20	.54			
38	.43			
40	.65			
11*	.35	.41		
1		.66		
12		.66		
25		.56		
29		.58		
32		.58		
33		.39		
35		.51		
36		.69		
30*		.25	.64	
13*		.18	.75	
9			.70	
10			.60	
26			.34	
4			.14	
6			.41	
19			.23	
37			.16	
22*			(.11)	(.26)
14*		.24	.18	
18*	.42		.13	
2				.42
5				.41
7				.38
8				.40
15				.45
31				.44
39				.48
24*	.37			.24
27*		.46		.13
34*		.40		.20

*Indicates item failing to load with expected dimension. Highest factor loading and loading for predicted factor are listed. () indicates negative factor loading.

confirmed the four factors, although some items have shifted from one factor to another" (p. 317).

Dependent Variables

To measure adolescents' response to anti-drug PSAs, emotional response, cognitive response, attitude toward the PSA, attitude toward drug use and behavioral intention to use drugs were assessed. In addition, adolescents' level of drug use was assessed to confirm or disconfirm the relationship between use and the sensation seeking dimensions.

Izard's (1979) Differential Emotions Scale III (DES III), designed to assess children's and adolescents' emotions at the time of administration of the scale, measured emotional response to the PSA. After completion of the DES III, subjects completed a cognitive response task in which they were asked to list their thoughts in response to the PSA they had just seen. Subjects had two and one half minutes to complete this task. Two independent coders designated the responses as either support or counter arguments (inter-coder reliability = 0.96).

Attitude toward the PSA was measured using five, 5-point semantic differential items: pleasant/unpleasant, good/bad, useful/useless, valuable/worthless, and

adolescents. This factor analysis supports Zuckerman's (1990) summary of the results of continued scale development and testing: "The forms of the Sensation Seeking Scale have been translated into many languages and factor analyses in several countries have essentially

beneficial/not beneficial. Similarly, subjects indicated their feelings toward drug use on five, 5-point differential scales: extremely good/extremely bad, extremely pleasant/extremely unpleasant, extremely favorable/extremely unfavorable, extremely valuable/extremely

worthless, and extremely acceptable/extremely unacceptable. Subjects' attitude toward drug use was calculated by averaging responses to the five scales. Subjects were then asked to indicate on a 5-point scale how likely it is they will use drugs in the next week, the next month or ever. These three behavioral intention measures were assessed individually to examine both short- and long-run behavioral intention.

The final measure, actual use, asked subjects to indicate the extent of their drug use in the past 30 days. The measure used a 5-point scale with frequency anchor labels ranging from "not at all" to "almost everyday". Extent of use was measured for a number of licit and illicit drugs including cigarettes, beer or wine, liquor, LSD, uppers, downers, marijuana and cocaine or crack. Users were defined as subjects indicating any level of use of illicit drugs in the past 30 days.

Table 2
Sample Characteristics

Demographic Characteristic	Frequency	Percent
Race		
Hispanic	9	2.4%
Oriental/Asian	7	1.9%
Black	104	28.0%
White	230	62.0%
Other	17	4.6%
Did not respond	4	1.1%
Sex		
Male	180	48.5%
Female	186	50.1%
Did not respond	5	1.4%
Age		
13-14	270	72.8%
15-16	92	24.8%
Did not respond	9	2.4%
Type of Substance Use		
Cigarettes		
User	123	33.2%
Nonuser	242	65.2%
Did not respond	6	1.6%
Alcohol		
User	131	35.3%
Nonuser	233	62.8%
Did not respond	7	1.9%
Drug		
User	103	27.8%
Nonuser	261	70.3%
Did not respond	7	1.9%

Results

Sample Characteristics

In addition to the sensation seeking scale, dependent measures and use measure, subjects responded to several items assessing demographic characteristics. Table 2 describes the demographic make-up of the sample as well as providing information regarding the extent of reported cigarette, alcohol, and drug use.

In general, Table 2 suggests that the sample used in this study was racially mixed, although the Oriental/Asian and Hispanic groups were somewhat under represented. The sample was basically split between males and females, most of whom were in the 13-15 year age range.

The extent of cigarette, alcohol and drug use reported illustrates the seriousness of the substance abuse problem among adolescents. Despite a potential under reporting bias in a drug or alcohol survey, almost 1/3 of the middle school subjects indicated use of either cigarettes, alcohol or drugs in the past 30 days.

Substance Use and Sensation Seeking Dimensions

Examining the extent of drug use by sensation seeking dimension supports previous research which indicates that overall sensation seeking and the dimensions of sensation seeking may be useful targeting variables. The differentiation of users/nonusers by dimensions illustrates the value of the dimensions in identifying segments, a criterion in segmentation. Table 3 illustrates the relationship between overall sensation seeking and each of the four dimensions with cigarette, alcohol and drug use.

Overall, sensation seeking is significantly, positively related to drug, alcohol and even cigarette use. Similarly, all four dimensions of sensation seeking show strong, significant relationships

Table 3
Correlations Between Sensation Seeking and Substance Use*

	Drug	Alcohol	Cigarette
Sensation Seeking	.43	.41	.44
Disinhibitionism	.53	.48	.48
Thrill and Adventure Seeking	.15	.16	.23
Experience Seeking	.30	.30	.36
Boredom Susceptibility	.38	.34	.30

*All correlations are significant at the < .01 level.

Table 4
Regression Analysis Results

Dependent Variable	Beta	T	Sig. T
Emotional Response			
Thrill/Adventure Seeker	.052	.789	.43
Boredom Susceptibility	.004	.093	.91
Experience Seeker	.081	-1.214	.26
Disinhibitionist	.094	-1.722	.12
Support Arguments			
Thrill/Adventure Seeker	.004	.073	.94
Boredom Susceptibility	-.104	-1.528	.13
Experience Seeker	-.074	-1.088	.27
Disinhibitionist	-.160	-2.494	.01*
Counter Arguments			
Thrill/Adventure Seeker	.050	.844	.39
Boredom Susceptibility	.097	1.411	.16
Experience Seeker	.052	.759	.45
Disinhibitionist	.115	1.783	.05*
Attitude Toward the PSA			
Thrill/Adventure Seeker	-.015	-.265	.79
Boredom Susceptibility	.166	2.393	.02*
Experience Seeker	-.059	-.847	.40
Disinhibitionist	.142	2.166	.03*
Attitude Toward Drug Use			
Thrill/Adventure Seeker	.011	.211	.83
Boredom Susceptibility	-.099	-1.558	.12
Experience Seeker	-.012	-.194	.85
Disinhibitionist	-.386	-6.464	.00*
Behavioral Intention/Week			
Thrill/Adventure Seeker	-.017	-.304	.76
Boredom Susceptibility	.052	.789	.43
Experience Seeker	.005	.081	.93
Disinhibitionist	.349	5.621	.00*
Behavioral Intention/Month			
Thrill/Adventure Seeker	-.022	-.386	.69
Boredom Susceptibility	.049	.747	.45
Experience Seeker	-.006	-.095	.92
Disinhibitionist	.371	6.011	.00*
Behavioral Intention/Ever			
Thrill/Adventure Seeker	.003	.047	.96
Boredom Susceptibility	.043	.653	.51
Experience Seeker	.016	.243	.81
Disinhibitionist	.323	5.172	.00*

*Significant at the $\leq .05$ level.

with elements of substance use. This finding supports Hypotheses 1 and 2 but not Hypotheses 3 and 4 (See Table 5 for a summary of findings for each hypothesis). Clearly, the propensity to use drugs, alcohol or cigarettes increases with any dimension of sensation seeking. The weakest relationship, though still significant, was for thrill and adventure seeking young adolescents.

The strongest relationship existing is between the substance factors and the disinhibitionism dimension. This

relationship is not surprising given the disinhibitionist's tendency to engage in wild, uncontrolled behaviors. Substance use not only fulfills the need to engage in such behaviors, but may serve as a "gateway" to such behaviors by removing any inhibitions.

Response to PSAs

In addition to assessing the relationship between substance use and the sensation seeking dimensions, the nature of response to PSAs by individual dimension was evaluated using multiple regression to test Hypotheses 5a-5e and 6a-6e. Table 4 summarizes the results of the analysis undertaken to assess which, if any, sensation seeking dimensions differentiate adolescents' response to anti-drug PSAs.

None of the sensation seeking dimensions were significantly related to the dependent measure emotional response. This may suggest that adolescents' emotional response to anti-drug PSAs cannot be differentiated by sensation seeking dimensions. It is possible, however, that emotion was not adequately aroused or measured. The stimulus PSAs may not have been dramatic enough to arouse strong emotions. Use of a paper and pencil test of emotion, though a widely used one, may not have adequately assessed adolescents' emotions.

Cognitive responses, however, were differentiated by the sensation seeking dimension disinhibitionism, as posited in H5a. Adolescents higher in disinhibitionism were likely to express counter arguments in response to PSAs, but were unlikely to list support arguments. Subjects higher in disinhibitionism listed thoughts such as "I wish everyone would get off my case about drugs," "it (the PSA) was stupid," and "the kids in the picture were ugly." The disinhibitionist factor appears to predispose the adolescent to form negative

thoughts in response to PSAs. The remaining sensation seeking dimensions, including experience seeking, did not differentiate adolescents' emotional or cognitive responses to the PSAs.

Significant, positive relationships were found for both disinhibitionism and boredom susceptibility with adolescents' attitude toward the PSA. The attitude toward the PSA scale was reverse scored; thus, a positive relationship suggests that those higher in boredom

susceptibility and disinhibitionism were more negative toward the PSA than those lower in these dimensions. The two remaining dimensions were insignificant in explaining variation in attitudes toward the PSA. The emergence of boredom susceptibility as significant was unexpected, yet not surprising when the nature of the boredom susceptible adolescent is considered. He/she tends to avoid and dislike boring tasks. It is likely that completing the numerous dependent measures in this study was considered unstimulating and a boring task. Thus, the boredom susceptible individual's attitude was likely negative toward the task, and this negative attitude carried over to attitude toward the PSA.

Although two sensation seeking dimensions emerged as significant for attitude toward the PSA, only disinhibitionism was significant in explaining attitude toward drug use. The relationship was negative, suggesting that young adolescents higher in disinhibitionism have a more positive attitude toward drug use (attitude toward drug use was reverse scored). Consistent with Fishbein (1967), the present study found a positive relationship between attitudes and behavioral intention. The disinhibitionism dimension of sensation seeking was the only dimension significantly explaining variance in young adolescents' behavioral intention to use drugs in the next week, the next month or ever. Young adolescents higher in disinhibitionism are more likely than those lower in this dimension to indicate behavioral intention to use drugs in the future. Again, the remaining sensation seeking dimensions were insignificant factors in relation to either attitude toward drug use or behavioral intention to use drugs (Table 5).

Suggestions for Future Research

This research was undertaken in an attempt to further identify viable targeting variables for anti-drug PSAs aimed at adolescents. Earlier works identified sensation seeking, a biologically based personality variable, as a possible targeting element given the strong, positive correlation between sensation seeking and drug use. This current study went a step further in focusing on the dimensions of sensation seeking rather than the combined construct. In addition, the present research sought to ascertain not only relationships between specific dimensions and drug use, but the ability of the sensation seeking dimensions to differentiate among young adolescents' response to anti-drug PSAs.

The strong, positive relationships found between each of the four sensation seeking dimensions and substance use suggest that any of the four dimensions could serve as a viable targeting variable for anti-drug messages. The disinhibition factor shows the strongest relationship suggesting, perhaps, that anti-drug messages should focus on reaching the disinhibited sensation seeker. The ability to selectively target this group depends, however, on the ability to differentiate the disinhibitionist's response to anti-drug messages.

The regression analysis further supports the notion that disinhibitionism may be a strong targeting variable. As their level of disinhibitionism increases, young adolescents tend to respond more negatively to anti-drug PSAs. The disinhibitionist generated more counter arguments and fewer support arguments. He/she had a more negative

Table 5
Summary of Hypotheses and Results

Hypothesis	Prediction	Result
1	Positive relationship: experience seeking/drug use	Supported
2	Positive relationship: disinhibitionism/drug use	Supported
3	No relationship: thrill/adventure/drug use	Not Supported
4	No relationship: boredom susceptibility/drug use	Not Supported
5a	Positive relationship: experience seeking/emotional response	Not Supported
5b	Positive relationship: experience seeking/cognitive response	Not Supported
5c	Negative relationship: experience seeking/attitude toward the PSA	Not Supported
5d	Positive relationship: experience seeking/attitude toward drug use	Not Supported
5e	Positive relationship: experience seeking/behavioral intent	Not Supported
6a	Positive relationship: disinhibitionism/emotional response	Not Supported
6b	Positive relationship: disinhibitionism/cognitive response	Supported
6c	Negative relationship: disinhibitionism/attitude toward the PSA	Supported
6d	Positive relationship: disinhibitionism/attitude toward drug use	Supported
6e	Positive relationship: disinhibitionism/behavioral intent	Supported

attitude toward the PSA as well. Thus, although disinhibitionism differentiates response to PSAs, it tends to do so in a negative manner. The disinhibitionist is not only more likely to use drugs or other illegal substances, but is more likely to respond negatively to any efforts made to control this predisposition. Future research must ascertain what, if any, message elements reach the "at-risk" disinhibitionist. Specifically, "Does the disinhibitionist respond better to different types of appeals and/or to different message execution elements (i.e. explicit vs. implicit conclusions or one-sided vs. two-sided messages)?" This research did not attempt to manipulate message elements or to evaluate response to different PSAs by dimension. Clearly, future work should focus on specifically developing PSAs to reach the disinhibitionist.


Compounding the problem of negative response to PSAs is the disinhibitionist's more favorable attitude toward drugs, even after exposure to anti-drug messages. As the adolescent's level of disinhibitionism increases, so to does his/her intention to use drugs, both in the short- and the long-term. Thus, PSA producers are faced with a difficult dilemma. This research suggests that those higher in the disinhibitionist factor are the most "at-risk" audience. Yet, the results also show that this same group is more predisposed to respond negatively to anti-drug messages. Thus, a decision must be reached as to which group(s) to concentrate limited resources on: those who are more likely to respond favorably to anti-drug messages (high in experience seeking, thrill and adventure seeking, and boredom susceptibility) or those who can be considered most "at risk" (high in disinhibitionism).

Understanding the nature of the "at-risk" audience represents a critical, first step toward combating the substance use problem among adolescents. This audience has a strong need for sensation and this need is fulfilled through wild parties, drug use and other opportunities to "let loose." Influencing and directing this need toward less risky activities requires further research to identify how to best reach this audience with anti-drug messages.

This research is derived from Zuckerman's (1978; 1983) theory of optimal stimulation and sensation seeking as well as Donohew, Finn and Christ's (1988) activation theory of information exposure. The findings presented lend support to Zuckerman and others work on the relationship between individuals' need for stimulation and use of drugs to obtain that stimulation. Support is also provided for the notion of sensation seeking dimensions as providing distinct approaches for fulfilling sensation seeking needs. In this study, for example, thrill and adventure seekers were less likely to engage in drug use, supporting the theoretical contention that these individuals fulfill the need for sensation through exciting activities. Future work needs to

further explore the application of this theory to products and services. Perhaps the nature of the subscale tendencies can be used to segment product/service markets as well.

Donohew et al.'s (1980) theory is supported and extended in that the sensation seeking dimensions were useful in determining message effectiveness. Donohew et al.'s (1980) work focused on sensation seeking overall and message elements. These findings suggest the extension of activation theory to the dimensions of sensation seeking. Thus, variations in information format or content may result in persuasion for the high experience seeker, but not the high disinhibitionist. Future tests of this theory should consider that arousal patterns may differ by dimension, and message variations to test the theory should be based on knowledge of the dimensions.

Finally, sensation seeking and its dimensions can be used to develop theory to explain teens' response to anti-drug messages. Given this study and past findings on sensation seeking dimensions and response to message elements, the potential exists to develop a model of message effects by dimension. For example, fear and persuasion literature (a common appeal used in PSAs) suggests persuasion follows some emotional response to the message. The high sensation seeker, needing more stimulation for arousal, may require higher levels of threat to be persuaded. The sensation seeking dimensions may direct the type of fear message needed to generate interest in and attention to the message. 

*** References ***

1. Advertising Research Foundation, *A Strategic Research Approach to Measuring Advertising Effectiveness*, New York, NY, 1991.
2. Andrucci, Gay L. Robert P. Archer, David L. Pancoast and Raymont A. Gordon, "The Relationship of MMPI and Sensation Seeking Scales to Adolescent Drug Use," *Journal of Personality Assessment*, Vol. 53, No. 2, pp. 253-266, 1989.
3. Arnett, Jeffrey, "Heavy Metal Music and Reckless Behavior Among Adolescents," *Journal of Youth and Adolescence*, Vol. 20, No. 6, pp. 573-592, 1991.
4. Atkin, Charles.K. and Vicki Freimuth, "Formative Evaluation Research in Campaign Design," in *Public Communication Campaigns*, R.E. Rice and C.K. Atkin (Eds.), Newbury Park CA: SAGE Publications, pp. 131-150, 1989.
5. Bell, Harry, "Public Service Ads Flower With Local Tie-Ins," *Advertising Age*, Vol. 1, No. 20, February 24, 1992.
6. Black, Gordon S., "The Attitudinal Basis of Drug Use-1987 and Changing Attitudes Toward Drug Use-

- 1988: Reports From the Media-Advertising Partnership for a Drug-free America," Rochester, NY: Gordon S. Black Corporation, 1988.
7. Cleland, Kim, "Anti-Drug Effort Relies on Positive Theme," *Advertising Age*, Vol. 1, No. 14, February 7, 1994.
 8. Donohew, Lewis R., "Effects of Drug Abuse Message Styles: Final Report," a report of a study conducted under a grant from the National Institute on Drug Abuse, 1988.
 9. Donohew, Lewis R., Seth Finn, and William G. Christ, "The Nature of News Revisited: The Roles of Affect, Schemas, and Cognition," in L. Donohew, H. Sypher, & T. Higgins (Eds.), *Communication, Social Cognition and Affect*. Hillsdale, NJ: Erlbaum, pp. 195-218, 1988.
 10. Donohew, Lewis R., David M. Helm, Patricia Lawrence and Milton J. Shatzer, "Sensation Seeking, Marijuana Use and Responses to Prevention Messages: Implications for Public Health Campaigns," In R.R. Watson, (Ed.). *Drug and Alcohol Abuse Review*, Clifton, NH: the Humana Press, 1990.
 11. Donohew, Lewis R., Philip Palmgreen and John Duncan, "An Activation Model of Information Exposure," *Communication Monographs*, Vol. 47, pp. 295-303, 1980.
 12. Donohew, Lewis R., Philip Palmgreen, Elizabeth P. Lorch, Mary T. Rogus, David M. Helm, and Nancy Grant, "Sensation Seeking and Targeting of Televised Anti-Drug PSAs," Paper presented at the 1989 International Communication Association Conference, Chicago, IL, 1989.
 13. *Drug and Crime Facts*, Washington, D.C.: Government Printing Office, 1988.
 14. Feingold, Paul C. and Mark L. Knapp, "Anti-Drug Abuse Commercials," *Journal of Communications*, Vol. 27, pp. 20-28, 1977.
 15. Fishbein, Martin, "Attitude and the Prediction of Behavior," in *Readings in Attitude Theory and Measurement*. Martin Fishbein, (Ed.), New York, NY: Wiley, 1967.
 16. Flay, Brian R. and Judith L. Sobel, "The Role of Mass Media in Preventing Adolescent Substance Abuse," In *Preventing Adolescent Drug Abuse: Intervention Strategies*. Glynn, T.J., Leukefeld, C.G. & Ludford, T.J., eds. NIDA Research Monograph Series, Vol. 47, pp. 5-35, 1983.
 17. Glasgow, M. Ruth, Adrienne M. Cartier and Glenn D. Wilson, "Conservatism, Sensation-seeking and Music Preferences," *Personality and Individual Differences*, Vol. 6, pp. 395-396, 1985.
 18. Izard, Carroll E., *Human Emotions*, New York, NY: Plenum Press (1977).
 19. Jefferson, Terry W. and James H. Johnson, "The Relationship of Hyperactivity and Sensation Seeking to Delinquency Subtypes," *Criminal Justice and Behavior*, Vol. 18, No. 2, pp. 195-201, 1991.
 20. King, Karen W. and Leonard N. Reid, "Fear Arousing, Anti-Drinking and Driving PSA's: Do Physical Injury Threats Influence Young Adults?" in J.H. Leigh and C.R. Martin Jr. (Eds.) *Current Issues and Research in Advertising*, Ann Arbor, MI: The University of Michigan Press, pp. 155-175, 1990.
 21. Kizziar, Janet W. and Judy Hagedorn, *Search for Acceptance: the Adolescent and Self-esteem*, Chicago, IL: Nelson-Hall, 1979.
 22. Newcomb, Michael D. and Linda McGee, "Influence of Sensation Seeking on General Deviance and Specific Problem Behaviors From Adolescence to Young Adulthood," *Journal of Personality and Social Psychology*, Vol. 61, No. 4, 614-628, 1991.
 23. NIDA, National Household Survey on Drug Abuse, *National Institute on Drug Abuse*, Washington, D.C.: Government Printing Office, 1992.
 24. Nunnally, Jim, *Psychometric Theory, Second Edition*, New York, NY: McGraw-Hill Book Company, 1978.
 25. Palmgreen, Philip, Elizabeth P. Lorch, R. Lewis Donohew, David M. Helm, Stacey A. Baer, and Margaret U. Dsilva, "Program Context, Sensation Seeking, and Attention to Televised Anti-Drug Public Service Announcements," Paper presented at the 1991 International Communication Association Conference, Chicago, IL, 1991.
 26. Pearson, Pamela, "Differential Relationships of Four Forms of Novelty Experiencing," *Journal of Consulting and Clinical Psychology*, Vol. 37, pp. 23-30, 1971.
 27. Peter, J. Paul, "Reliability: A Review of Psychometric Basics and Recent Marketing Practices," *Journal of Marketing Research*, Vol. 16, February, pp. 1-10, 1979.
 28. Rogus, Mary T., Philip Palmgreen, and Maureen Everett, "Sensation Seeking as a Targeting Variable for Television Advertisers," Paper presented at the 1990 International Communication Association Conference, Chicago, IL, 1990.
 29. Rowland, Guy L. and Rowland E. Franken, "The Four Dimensions of Sensation Seeking: a Confirmatory Factor Analysis," *Personality and Individual Differences*, Vol. 7, pp. 237-240, 1986.
 30. Schierman, Michael J. and Guy L. Rowland, "Sensation-Seeking and Selection of Entertainment," *Personality and Individual Differences*, Vol. 6, pp. 599-603, 1985.
 31. Schoenbachler, Denise D., "The Effectiveness of Physically and Socially Threatening Fear Appeals in

- Anti-drug Public Service Announcements," Paper presented at the 1993 International Communications Association Conference, Washington, DC, 1993.
32. Schoenbachler, Denise D. and Margaret U. Dsilva, "The Dissemination and Content of Drug Prevention Public Service Announcements," *Journal of Nonprofit and Public Sector Marketing*, Vol. 1, No. 2/3, pp. 179-192, 1993.
33. Schoenbachler, Denise D., Mary Boguslaw and Monica Ganas, "Sensation Seeking Dimensions and Attention to Anti-drug PSA's," in M.C. Gilly et al. (Eds.), *American Marketing Association Summer Educators' Conference Proceedings*, pp.210-218, 1991.
34. Smith, Ronald E., J.T. Ptacek, and Frank L. Smoll, "Sensation Seeking, Stress, and Adolescent Injuries: A Test of Stress-Buffering, Risk-Taking and Coping Skills Hypotheses," *Journal of Personality and Social Psychology*, Vol. 62, No. 6, pp. 1016-1024, 1992.
35. Stacy, Alan W., Michael D. Newcomb and Peter M. Bentler, "Social Psychological Influences on Sensation Seeking From Adolescence to Adulthood," *Personality and Social Psychology Bulletin*, Vol. 17, No. 6, pp. 701-708, 1991.
36. Staff, "Don't Fry Your Brain," *Forbes*, pp.116-117, February 4, 1991.
37. Thorne, Craig R. and Richard R. DeBlassie, "Adolescent Substance Abuse," *Adolescence*, Vol. 20, pp. 334-347, 1985.
38. White, Helen Raskin, Erich W. Labouvie, and Marsha E. Bates, "The Relationship Between Sensation Seeking and Delinquency: A Longitudinal Analysis," *Journal of Research in Crime and Delinquency*, Vol. 22, No. 3, pp. 197-211, 1985.
39. Wooden, Ruth A., "PSAs Can Make a Difference, But it Takes Time," *Advertising Age*, Vol. 1, March 23, 1994.
40. Wundt, W.M., *Grundzuge der physiologischen psychologie (Principles of Physiological Psychology)*, Leipzig: Englemann, 1874.
41. Zuckerman, Marvin, "Behavior and Biology: Research on Sensation Seeking and Reactions to the Media," In L.Donohew, H.Sypher, and T.Higgins, (Eds.), *Communication, Social Cognition and Affect*. Hillsdale, NJ: Erlbaum, 1987.
42. Zuckerman, Marvin, *Biological Bases of Sensation Seeking, Impulsivity, and Anxiety*. Hillsdale, NJ:Erlbaum, 1983.
43. Zuckerman, Marvin, *Sensation Seeking: Beyond the Optimal Level of Arousal*. Hillsdale, NJ:Erlbaum, 1978.
44. Zuckerman, Marvin, "Dimensions of Sensation Seeking," *Journal of Consulting and Clinical Psychology*, Vol. 36, pp. 45-52, 1971.
45. Zuckerman, Marvin, "The Psychophysiology of Sensation Seeking," *Journal of Personality*, Vol. 58, No. 1, pp. 313-345, 1990.
46. Zuckerman, Marvin, Sybil Eysenck and H.J. Eysenck, "Sensation Seeking in England and America: Cross-Cultural, Age and Sex Comparisons," *Journal of Consulting and Clinical Psychology*, Vol. 36, pp. 45-52, 1978.
47. Zuckerman, Marvin, Neary, Roman S. and B.A. Brustman, "Sensation Seeking Scale Correlates in Experience (Smoking, Drugs, Alcohol, Hallucinations, and Sex) and Preference for Complexity (designs)," Proceedings of the 78th Annual Convention of the American Psychological Association, 1970.
48. Zuckerman, Marvin and Michael Neeb, "Demographic Influences in Sensation Seeking and Expressions of Sensation Seeking in Religion, Smoking and Driving Habits," *Personality and Individual Differences*, Vol. 1, pp. 197-206, 1980.