

# Associations Between Message Features and Subjective Evaluations of the Sensation Value of Antidrug Public Service Announcements

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*The effective targeting of high sensation-seeking adolescents, who are most at risk for drug abuse, requires the creation of high sensation value messages. Whereas previous research has focused on subjective reactions of receivers as the primary way to define message sensation value (MSV), we conceptualize message sensation value as the formal and content features (audio, visual, and format) of a message that contribute to subjective message sensation evaluations. The three objectives of this study were (a) to identify message design features that would aid in the development of effective prevention messages targeting high sensation seekers, (b) to develop an objective measure of message sensation value based on formal and content features of messages, and (c) to determine whether high message sensation value messages were associated with higher subjective evaluations of message sensation value. In the present study, 418 undergraduates each viewed 10 PSAs selected at random from a pool of 109 PSAs that had been previously coded for message sensation value. Analyses provide support for the central hypothesis of the study, indicating that perceived message sensation value is at least in part a product of the formal and content features of a PSA.*

In 1998, the U.S. Congress stepped up the nation's focus on drug and alcohol abuse by allocating \$1 billion to the Office of National Drug Control Policy for mass media-based prevention campaigns and evaluations. We now know some of the key elements of effective media-based antidrug campaigns, including effec-

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tive audience segmentation, placement of messages in appropriate media content and contexts, and saturation of the environment with prevention messages that are high in “sensation value” in order to reach those most at risk for drug use—the high sensation seekers (Donohew, Lorch, & Palmgreen, 1991; Flay & Sobel, 1983; Lorch et al., 1994; Palmgreen, Donohew, Lorch, Hoyle, & Stephenson, 2001). However, little attention has been devoted to how antidrug public service announcements (PSAs) should be systematically crafted in order to have maximum impact with this audience segment most at risk. Therefore, one goal of this research was to identify message design features that show the greatest promise for developing messages high in sensation value for antidrug campaigns and other interventions aimed at risky behaviors correlated with sensation seeking. A second goal was to develop an objective measure of message sensation value in order to assess public service announcements on critical structural and content features typically associated with high sensation value messages. A third goal was to determine whether the formal and content features measured in such a scale lead to greater perceptions of message sensation value of antidrug PSAs. To accomplish these goals, we conducted a study designed to identify certain features of drug prevention PSAs associated with viewers’ subjective responses to them.

#### *Message Sensation Value and Sensation Seeking*

Message sensation value represents the degree to which formal and content audiovisual features of a message elicit sensory, affective, and arousal responses (Palmgreen et al., 1991). Messages high in sensation value (HSV) are characteristically novel, creative, exciting, intense, dramatic, or fast-paced (Lorch et al., 1994; Palmgreen et al., 2001; Stephenson et al., 1999). Several media antidrug prevention projects have employed HSV messages to target high sensation seekers (HSS) largely because HSS maintain a need for novel, complex, ambiguous, and emotionally intense stimuli (Zuckerman, 1979, 1994). That is, they desire more novel and intense sensations and experiences, and they exhibit a stronger willingness to take risks for these experiences compared to their low sensation-seeking counterparts (LSS; Bardo & Mueller, 1991; Zuckerman, 1994).

This drive for thrill seeking leads HSS to engage in riskier health behaviors, including drug use. For example, HSS are more likely to begin experimenting and using drugs earlier than LSS, as well as to use higher levels of a variety of different drugs (Barnea, Teichman, & Rahav, 1992; Clayton, Cattarello, & Walden, 1991; Huba, Newcomb, & Bentler, 1981; Newcomb & McGee, 1991; Zuckerman, 1994). Donohew’s (1988, 1990) research determined that junior high HSS are four times as likely as LSS to use marijuana; in senior high, HSS are three times more likely to use marijuana. These typical behavioral differences regarding illicit drug use between HSS and LSS make sensation seeking a useful targeting variable for prevention campaigns. What is especially important, though, from a media prevention perspective is that HSS also have distinct and consistent preferences for particular kinds of messages based on their needs for the novel, the unusual, and the intense (Donohew et al., 1991; Zuckerman, 1979, 1990, 1994). Such characteristics are found in HSV messages.

### *Theoretical Perspectives*

Two theoretical perspectives guide the research on sensation seeking and message sensation value. The first, the activation model of information exposure (Donohew, Palmgreen, & Duncan, 1980; Donohew, Lorch, & Palmgreen, 1998), contends that attention is a function primarily of an individual's level of need for stimulation. More specifically, activation theory claims that (a) individuals have an optimum level of activation or arousal at which they feel most comfortable and (b) individuals enter information exposure with the expectation of achieving or maintaining this optimal state. If individuals do not achieve or maintain this optimal state of exposure to a message, it is likely that they will turn away and seek another source of stimulation to help them achieve their desired state.

Activation theory is readily applied to sensation seeking and message sensation value. First, high sensation seekers need considerably more novel and powerful messages to attract and hold their attention. High sensation value messages, with their fast pace and novel and dramatic style, typically provide an optimal state of activation for HSS, substantially reducing the chance that they will seek out alternative forms of stimulation. Experiments have demonstrated that messages high in sensation value produce higher levels of attention and desired behavior change in high sensation seekers, whereas messages low in sensation seeking produce the same effects in low sensation seekers (Donohew et al., 1991; Lorch et al., 1994; Palmgreen et al., 1991). Zuckerman (1988) maintains that HSS are more receptive to novel stimuli, including media messages, because their "optimal level of stimulation depend on the levels set . . . by novel stimuli" and that "anything producing lower arousal levels may be considered boring" (p. 182).

Other research illustrates the effectiveness of employing HSV messages to change HSS drug-related behaviors. Most recently, Palmgreen and his associates (2001) reported a time-series investigation demonstrating the dramatic effectiveness of three televised antimarijuana media campaigns employing HSV messages that reduced marijuana use among HSS adolescents in two cities. This and other studies document the utility of using HSV messages for designing messages and programs to reduce unhealthy behaviors among at-risk groups.

The second theoretical perspective of importance to this research is the limited capacity model of information processing (Lang, 1990; Lang & Dhillon, 1995; Lang, Newhagen, & Reeves, 1996; Thorson & Lang, 1992). This theoretical perspective assumes that television viewers have a limited cognitive ability to select, encode, store, and retrieve the information contained in televised stimuli. Attention to televised stimuli is a function of both conscious and unconscious decision making on the part of viewers. Although viewers can actively control attention to stimuli based on their goals, interests, and intentions, formal or structural features of messages trigger automatic (unconscious) attentional processes. Structural features include cuts, edits, pacing, camera movement, scene changes, and narrative structure as well as video graphics (Geiger & Reeves, 1993; Yoon, Bolls, & Muehling, 1999). Content features, on the other hand, include the story, its characters, the plot, and the actions featured in the story (Geiger & Reeves, 1993; Stephenson & Palmgreen, 2001).

Formal and content features of media-based messages have received considerable attention in the literature, particularly in the work of Lang and her colleagues,

and have been shown to have profound effects on a number of important outcomes. Manipulations of such features have been shown to affect attention to the message (Geiger & Reeves, 1993; Lang, 1990; Lang, Geiger, Strickwerda, & Sumner, 1993; Lang, Newhagen, & Reeves, 1996; Lang, Zhou, Schwartz, Bolls, & Potter, 2000; Palmgreen et al., 1991), produce changes in physiological arousal such as heart rate and skin conductance (Lang, 1990; Lang, Bolls, Potter, & Kawahara, 1999; Lang, Dhillon, & Dong, 1995; Lang et al., 1993; Lombard, Reich, Grabe, Bracken, & Ditton, 2000), increase emotional arousal (Detenber, Simon, & Reiss, 2000), increase or decrease memory for the message (Donohew et al., 1998; Lang, 1990, 1995, 2000; Lang et al., 1993; Lang et al., 1999; Lang, 2000; Lorch et al., 1994), affect the cognitive capacity required to process the message (Lang, 2000; Lang et al., 1995; Lang, Zhou, Schwartz, Bolls, & Potter, 2000), and affect the favorability of viewers' judgments of the message or even the persuasiveness of the message (Donohew, Palmgreen, & Lorch, 1994; Hitchon & Thorson, 1995; Palmgreen et al., 1991; Yoon et al., 1999). Thus, message features such as cuts and edits, pacing, sound, use of color, use of narrative, and incorporation of emotionally intense material are clearly linked to greater attention, memory for, and liking of the message, all of which are arguably linked to message effectiveness.

An important question raised by Lang (2000) is whether the attention demanded by structural features "steals" cognitive resources that might otherwise be devoted to the content of the message. This is particularly important when considering 30-second antidrug PSAs: a fast-paced, MTV-style spot high in sensation value may grab the attention of an adolescent audience, but whether audience members are able to comprehend and evaluate the message may be a vital consideration.

*Distinguishing Message Sensation Value From Perceived Message Sensation Value* Message sensation value (MSV) was originally conceptualized to represent the degree to which formal and content audiovisual features of a message elicit sensory, affective, and arousal responses (Everett & Palmgreen, 1995; Palmgreen et al., 1991). As research on message sensation value progressed, researchers realized that the distinction between subjective reactions to the message and the structural and content features contributing to these reactions is important (Stephenson, in press; Stephenson & Palmgreen, 2001). In fact, the original concept "message sensation value" has usually been operationalized as *perceived* message sensation value (PMSV), whereas message sensation value per se is now thought of as the attributes of a message that lead to PMSV (Palmgreen, Stephenson, Everett, Baseheart, & Francies, in press).

From this perspective, the present study is concerned with message sensation value as formal and certain content features of video-based messages that can be created or manipulated by message creators. In other words, as treated here, MSV is an attribute of the message, and PMSV is the sensory, affective, and arousal response to these message features.

Based on the work of Lang and others, as well as the research on sensation seeking and its relationship to perceived message sensation value, we propose that there are three primary types of message features that contribute to the message sensation value of antidrug PSAs. The first is the formal (structural) video

dimension, which includes the number of cuts and edits, visual special effects, and use of unusual colors, graphic images, and slow motion. The second is the formal audio dimension, which includes the use of auditory special effects, saturation of sound throughout the PSA, and use of unusual music. The third is the content dimension and includes the use of narrative, whether the action is shown or simply described, the violation of norms of antidrug public service announcements (in other words, the presentation of the message in a novel way), and the use of a surprise twist at the end (where the true message of the PSA is revealed in the final seconds of the PSA in a way that dramatically reframes the content of the message).

Research consistently has shown that high MSV messages are most successful with this high-risk group. Hence, we are seeking a new way to systematically create high MSV messages by investigating whether specific message features are linked to subjective perceptions of the sensation value of antidrug PSAs.

#### *The Measurement of Perceived Message Sensation Value*

Everett and Palmgreen (1995) conceptualized and developed a scale embodying message characteristics salient to sensation value. They then used their perceived message sensation value (PMSV) scale to classify 13 anticocaine PSAs as either HSV or LSV messages. The scale represented four hypothesized dimensions: emotional impact, physiological impact, sensory impact, and novelty. Although the PMSV scale attained good internal consistency and construct validity in their study and in another by Stephenson and Palmgreen (2001), there were not enough participants in the Everett and Palmgreen (1995) study to conduct a factor analysis on the measure.

Therefore, Palmgreen et al. (in press) conducted a subsequent study with a primary purpose of validating the PMSV scale with a more rigorous empirical evaluation. Exploratory factor analysis was employed on the 17-item PMSV scale using 368 high school students' reactions to six antimarijuana PSAs (Stephenson & Palmgreen, 2001). From these data, three factors emerged: emotional arousal, dramatic impact, and novelty. To help assess the validity of the three-factor solution, Palmgreen et al. (in press) gathered data from 444 college students who viewed six of the anticocaine PSAs from the Everett and Palmgreen (1995) study. Confirmatory factor analysis using structural equation modeling supported the validity of the three-factor PMSV solution for both HSS and LSS from the high school sample and the HSS from the college sample (a rough fit was obtained for college LSS).

These studies suggest that the 17-item PMSV scale is empirically robust. The scale evidenced good internal consistency in separate studies and has been cross-validated in different samples (young adults, adolescents) with different substances (cocaine, marijuana). Although these are all strengths of the scale, the PMSV relies on a person's perception of what is high and low in sensation value, requiring extensive screening of message concepts with target audience members before PSAs are produced. Time and monetary investments are inherent and thus impractical for those who are understaffed and underfunded (Stephenson, 1999). Consequently, it would be valuable to develop a substitute for message screening (before focus group testing is conducted) that retains the reliability, validity, and effectiveness of the PMSV scale and is highly correlated with PMSV, but is not

associated with a large investment of resources. Thus, we sought to determine which message features lead to perceptions of message sensation value.

### *Benefits of Measuring Message Sensation Value*

There are several benefits to the conceptualization and development of a more objective measure of message sensation value. First, rather than having target audience members evaluate a PSA on its emotional arousal, dramatic impact, or novelty, campaign team members could more objectively assess an existing PSA on critical formal and content features typically associated with HSV messages, such as the number of edits, a surprise conclusion, or the use of narrative. Second, if focus groups were planned to test finished PSAs, message concepts, or storyboards, this instrument could be used to reduce the number of messages presented to focus groups by eliminating messages low in MSV, and thus very likely low in PMSV. Finally, a more objective measure might allow the formulation of a more prescriptive approach for the creation of new PSAs targeted at HSS.

A major goal in developing this article, then, was to determine whether certain formal and content message features lead to greater perceptions of sensation value on the part of young adults. Meeting this goal should result in better and more efficient antidrug campaigns because message sensation value can be more easily controlled in the development phase, whereas perceived message sensation value can be determined only through extensive message testing. Meeting this goal would also shed light on how theoretical concepts within activation theory and the limited capacity model of information processing can be operationalized and manipulated.

We propose the following hypothesis on the basis of the literature on structural and content features of video-based messages as well as the literature on sensation seeking and message sensation value:

H1: Message sensation value (MSV) will have a positive relationship with the subjective response (perceived message sensation value, PMSV) of viewers to antidrug public service announcements (PSAs).

After coding 172 televised PSAs primarily produced by the Partnership for a Drug-Free America, we sought to validate this multidimensional scale by correlating results of our message sensation value evaluation with respondents' reactions (scores on the perceived message sensation value scale) to the televised public service announcements.

## **Method**

### *Participants*

Four hundred and 18 undergraduates enrolled in psychology and communication classes at a large university in the southern United States completed the experiment in exchange for extra credit or course credit. Female respondents constituted 64% of the sample. Caucasian respondents made up 85% of the sample, with another



10.6% being African American, 1.9% Asian, .2% Hispanic, and 1.9% "other." The age of the participants ranged from 18– to 54; the mean was 20.9 years.

### *Stimuli*

We used 109 previously televised, 30-second antidrug PSAs as stimulus materials. These PSAs were selected from a total pool of 172. Of the original 172 PSAs, 63 were eliminated from the pool because they targeted young children or parents, or because the language used in the PSA was not English.

### *Measures*

*Message sensation value.* To develop a coding scheme for message sensation value (described in detail in Morgan, Palmgreen, & Stephenson, 2001), we carefully examined PSAs that proved to be high in PMSV in previous studies. This yielded clues about the types of message characteristics that might be contributing to the message sensation value of the PSA. In addition, we referred to the extant literature on message characteristics for ideas on the types of features that are linked to outcomes such as attention and increased cognition that could be reliably coded. The studies by Lang and colleagues proved especially useful in this endeavor. Although we were conscious that factors such as production quality, script quality, and acting ability of the central characters were very important to the overall quality of the PSA, such factors are difficult to define and code.

After the coding scheme was completed, two trained coders examined approximately 45 antimarijuana and anticocaine PSAs and discussed how each PSA would be scored along each of the 11 features from the visual, audio, and content dimensions. The coders discussed issues related to definitions of each of the features and resolved disagreements. This allowed coders to examine the 109 antidrug PSAs used in the present study.

We calculated interrater reliabilities for each feature of the 109 PSAs. Overall, the reliabilities were quite strong, though there were a few exceptions. Reliabilities (calculated with Kendall's J-B or Cramér's  $V$ ) on elements comprising the visual dimension were (a) the number of cuts, J-B = .96; (b) visual effects,  $V$  = .78; (c) slow motion,  $V$  = .82; (d) use of bold or unusual colors,  $V$  = .93; and (e) use of intense imagery,  $V$  = .95. Reliabilities on the audio dimension were (a) sound saturation,  $V$  = .75; (b) music,  $V$  = .83; and (c) sound effects,  $V$  = .67. The reliabilities on the content dimension were (a) acted out,  $V$  = .54; (b) unexpected format,  $V$  = .85; and (c) surprise or twist ending,  $V$  = .90. Message sensation value scores thus were a sum of the presence of the following message features: number of cuts and edits, visual effects, unusual images, intense images, the "acting out" of the central concepts of the PSA, saturation of background sound, the use of background music, special sound effects, the use of an unexpected antidrug message format, slow motion, and the use of a surprise or "twist" ending. A summary of the coding scheme appears in Table 1.

*Perceived message sensation value.* Everett and Palmgreen (1995) initially conceptualized the perceived message sensation value scale to measure subjective perceptions of antidrug public service announcements. We adapted a 9-item version of the original 17-item scale for use in this study. Items were selected by taking the

**Table 1. Dimensions, Scoring, Reliabilities, and Descriptions of Coding Categories**

Dimension/feature	Scoring	Description
<i>Visual</i>		
Cuts	Count of cuts; also converted to low (0–6 cuts), moderate (7–14 cuts), and high (more than 15 cuts) levels and coded as 0, 1, or 2	The number of times the camera cuts from one visual scene to the next. Includes the final cut to agency sponsor at the end of the PSA.
Special visual effect	0/1 (absent/present)	Anything beyond the range of human ability involving special visual effects, including morphing, paint or blood “sliding” down the screen, or computer manipulation of images.
Slow motion	0/1 (absent/present)	The slowing of real-life action through technical intervention.
Unusual colors	0/1 (absent/present)	Unusual colors outside the range of colors normally perceived in real life.
Intense images	0/1 (absent/present)	Intense or horrifying images including needles going into arms, guns pointed at heads, or death.
<i>Audio</i>		
Sound saturation	0/1 (absent/present)	Background sound throughout the PSA, including street noise or other sounds, rather than simply having a person talking throughout the PSA.
Music	0/1 (absent/present)	Background music in the PSA.
Sound effects	0/1 (absent/present)	Unusual sounds (those that could not have occurred in “real life,” in that situation) heard in PSA, including gongs and other noises.
<i>Content</i>		
Acted out (vs. talking head)	0/1 (absent/present)	Instead of being <i>told</i> about the dangers of drugs (or benefits of being drug-free), viewers see actions corresponding to point of PSA.
Unexpected format	0/1 (absent/present)	If images and message are interchangeable with other antidrug PSAs, it is “expected.”
Surprise/Twist ending	0/1 (absent/present)	The presence of a climactic, shocking end to the PSA. If the end cannot be predicted, it has a “second-half punch.”



three highest loading items on each dimension of the PMSV scale. The mean reliability of this short scale across the 109 PSAs in the present study was high ( $\alpha = .89$ ).

### *Procedures*

We conducted the study in a computer lab equipped with 20 Apple G-R series computers with 16-inch monitors and outfitted with Panasonic headphones. The volume level was set to the same point on each computer. Authorware, a multimedia software program, was used to create the protocol used in this study.

When respondents arrived, they were asked to sit at a computer. They were told that we were trying to gain a better understanding of people's responses to antidrug public service announcements. Respondents were asked to sign a consent form and then to put on the headphones and click on the screen to begin. Questions appeared on the screen one at a time and participants answered by using a computer mouse to click on the appropriate response. Respondents first completed the sensation-seeking scale, followed by standard demographic questions (age, gender, and race or ethnicity).

Next, 10 PSAs were selected at random by Authorware from the pool of 109 digitized PSAs. The PSAs were copied onto a CD located in the CD-ROM drive of each computer. The PSAs were shown in random order. Finally, respondents completed the PMSV scale after viewing each PSA and were thanked and debriefed.

## **Results**

The mean PMSV score for each of the 109 PSAs was computed by averaging the evaluation of the PSA across all respondents (summing across the mean scores for each item). Each of the 109 PSAs was viewed by an average of 38 respondents. These scores were compared to the MSV scores for each of the 109 PSAs. The correlation between total MSV and total PMSV was strong,  $r(109) = .46, p < .001$ . Correlations between MSV and the subdimensions of PMSV were also calculated. Total MSV score correlated significantly with all of the subscales of PMSV: novelty,  $r(109) = .45, p < .001$ ; emotional arousal,  $r(109) = .48, p < .001$ ; and dramatic impact,  $r(109) = .38, p < .001$ . Similarly, total PMSV correlated significantly with most of the formal message features comprising MSV. These correlations appear in Table 2. According to this analysis, the features that appear to have the strongest link to all three dimensions of PMSV (as well as total PMSV) are the use of intense images, acting out rather than simply describing the consequences of drug use (or the storyline of the PSA), sound saturation and sound effects, employing an unexpected antidrug message format, and creating a surprise or twist ending to the PSA. Visual effects and unusual images correlated significantly with two of the three dimensions of PMSV. Interestingly, only the presence of music did not correlate significantly with at least one of the three dimensions of PMSV. It may be that indexes tapping music type or loudness would contribute to MSV with particular audiences.

A multiple regression analysis regressing total PMSV on the 11 MSV features reinforced these results (see Table 3). The beta weights of four of the features

**Table 2. Correlations Between Message Features of Message Sensation Value and PMSV**

	Novelty	Emotional arousal	Dramatic impact	PMSV total
Cuts/edits	.16	.26**	.07	.16
Visual effects	.21*	.22**	.11	.19*
Unusual images	.25**	.29**	.15	.25**
Intense images	.35**	.28**	.42***	.37***
Sound saturation	.36***	.35***	.32***	.35***
Music	.00	.03	-.10	-.01
Sound effects	.23*	.26**	.26**	.26**
Acted out	.31**	.31***	.32***	.33***
Unexpected format	.47***	.41***	.37***	.46***
Surprise/twist ending	.30***	.30***	.32***	.32***
Slow motion	.17	.23*	.13	.18
MSV total score	.45***	.48***	.38***	.46***

Note. Probability values are two-tailed.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

were significant at  $p < .05$  (intense images, sound saturation, unexpected format, and surprise/twist ending), and acted out closely approached this level of significance. These represent five of the six features that correlated significantly with all three PMSV dimensions. The betas of these features were similar in magnitude to their respective zero-order correlations with total PMSV. Sound effects, which had related significantly to all three PMSV dimensions and to total PMSV in the correlation analysis, did not emerge as a significant predictor of total PMSV when the effects of all other features were controlled. The effects of this variable may have been subsumed by the sound saturation feature in the multivariate analysis. The adjusted  $R$ -square for the entire model was .354, indicating good prediction of total PMSV by the message features included.

### Discussion

This study provides information instrumental to the development of effective antidrug PSAs. Consistent with the three goals of this study, we (a) identified which structural and content features of high sensation value PSAs elicit the strongest sensory, affective, and arousal responses; (b) established an objective measure of message sensation value; and (c) demonstrated that this new objective measure of message sensation value is correlated with the more subjective measure called perceived message sensation value.

**Table 3. Message Sensation Value Features as Predictors of Total PMSV: Multiple Regression Analysis**

	$\beta$	SE $\beta$	$\beta$	<i>p</i> (two-tailed)
Cuts/edits	-.00	.01	-.06	.53
Visual effects	.06	.10	.05	.58
Unusual images	.10	.08	.11	.23
Intense images	.20	.10	.17	.05*
Sound saturation	.21	.08	.23	.01*
Music	-.14	.08	-.16	.09+
Sound effects	.05	.09	.05	.56
Acted out	.15	.08	.17	.06+
Unexpected format	.25	.09	.26	.01*
Surprise/twist ending	.23	.11	.17	.04*
Slow motion	.02	.08	.02	.85

Note. Probability values are two-tailed.

\* $p < .05$ . + $p < .10$ .

*MSV and PMSV*

Producers of antidrug ads should consider specific, easily manipulated features that, if incorporated into antidrug ads, will appeal directly to at-risk youth and young adults. Through this investigation, we identified the structural and content features that are most likely to enhance the message’s ability to evoke sensory, affective, and arousal responses (i.e., perceived message sensation value). Those features were intense images, sound saturation, unexpected format, a surprise or twist ending, and acting out the consequences of drug use. When these objective features were present, participants rated ads as higher in perceived message sensation value (PMSV).

This is particularly important because messages high in PMSV elicit stronger affective responses (Palmgreen et al., in press) and increase attention to the consequences of drug use (Stephenson, in press; Stephenson & Palmgreen, 2001). Therefore, ads that are perceived to be greater in message sensation value are more likely to be effective with high sensation seekers. As a result of this study, we have identified certain structural and content features that are likely to increase PMSV and included these in a more objective measure of message sensation value.

As Donohew et al. (1994) have indicated, messages need not contain all the objective features in the MSV scale to be effective. However, the more features included, like an unexpected PSA format, sound saturation, and the use of intense images, the more likely the ad will be effective with the target audience. A limitation of the current study is that it does not allow us to specify the nature of each feature associated with the greatest effectiveness. For example, we cannot specify

the type of intense images or sound that may optimize effectiveness with a particular audience. Although the MSV scale offers valuable guidance, admittedly it is difficult to quantify and measure that “special something” that makes some PSAs particularly effective, even electrifying. There is no substitute for good acting by the characters featured in a PSA, nor for a compelling script. We are convinced that these less tangible elements also play an important role in how well antidrug PSAs are received by those who are at greatest risk of drug use. These are questions for future research to address.

Nonetheless, the results here suggest that across the 109 PSAs studied, the presence of certain MSV features contributed significantly to the PMSV of these PSAs. The MSV coding scheme presented here, although not obviating the need for focus group research, should help improve the process of creating messages that will be successful with HSS target audiences, thus reducing the expense associated with producing effective prevention messages. We are thus encouraged by these results that indicate that there are controllable features of antidrug PSAs that improve the chances that these PSAs will be effective in changing drug-related attitudes and behaviors.

## **Conclusion**

This study points to the efficacy of the development of theory-based, persuasive antidrug messages, an endeavor that continues to garner considerable attention on the part of communication researchers and practitioners. Research of this nature has the potential to tie particular elements of the message itself—structural and content features—to the way in which different audiences, especially those that differ in need for sensation, process these messages. Obviously, the limitations of the scale developed here highlight the difficulty of such an endeavor. On the other hand, this study provides good evidence that message features are tied to important dimensions of responses to these messages. The theoretical work associated with activation theory and the limited capacity model will continue to be important in this line of research. However, as one reviewer of this manuscript pointed out, there is a great need for theory that explicates the process underlying the relationship between message characteristics and message effectiveness. We have not yet reached that goal but we are optimistic that this study moves us further toward that end.<sup>1</sup>

<sup>1</sup> Some of these dimensions and elements overlap with previous research, whereas others are new to the literature. Because our research focuses on the creation of effective antidrug PSAs, the elements we have included in our studies are particular to this purpose. Thus, although Lang and colleagues make important distinctions between cuts and edits, as well as related versus unrelated cuts or edits, we have elected to bypass this level of detail in favor of attending to the general principles of how the number of cuts or edits affect PMSV responses. Some of our “content” variables are general concepts that do not have to do with specific consequences or arguments, but are more concerned with how these more specific features are arranged (e.g., surprise/twist ending) or portrayed (e.g., acted out versus talking head, use of a narrative structure).

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