

Lammers, H. Bruce, Kathy Kassarian, and Heather Patton (1988), "The Effects of Time Compression and Self-Focused Attention on Attitude: An Elaboration Likelihood Model Perspective," in Linda Alwitt (Ed.) Proceedings of the 1987 Meetings of Division of Consumer Psychology, Washington, DC: American Psychological Association (Division 23).

THE EFFECTS OF TIME COMPRESSION AND SELF-FOCUSED ATTENTION ON ATTITUDE:
AN ELABORATION LIKELIHOOD MODEL PERSPECTIVE

H. Bruce Lammers, Kathy Kassarian, and Heather Patton
Department of Marketing
California State University, Northridge -

Abstract

From Petty and Cacioppo's (1986) Elaboration Likelihood Model of persuasion it was hypothesized that time compression effects on attitudes would be restricted to message recipients who are relatively low in self-focused attention. One hundred and four business school student volunteers listened to an unfamiliar advertisement for an industrial product. The advertisement had been electronically compressed by 40% (High), 20% (Moderate), or 0% (None). In addition, some subjects were being obtrusively videotaped while they were listening to the advertisement (High Self-Focus Attention), and others were not being videotaped (Low Self-Focus Attention). Significant Time Compression X Self-Focus Attention interactions on cognitive responses and on attitudes toward the advertisement showed that time compression had a curvilinear effect (with moderate levels of compression producing the most favorable attitudes and cognitive responses) under low self-focused attention. This inverted-U relationship was attenuated by high self-focused attention. The results were generally supportive of the Elaboration Likelihood Model of persuasion.

Introduction

Time compression is the removal, usually by electronic means, of "dead air" and pauses in the verbal utterances of a speaker. Electronic time compression of speeches has the effect, then, of speeding up the message without significantly altering (raising) the voice pitch of the speaker. The relative effectiveness of time compressed speeches has been the object of considerable research and debate. Under certain conditions, moderate levels of time compression may have positive effects, if any at all, on persuasion-related variables (LaBarbera & MacLachlan 1979; MacLachlan & LaBarbera 1978; MacLachlan & Seigel 1980). A common explanation for positive effects of time compression revolves around the notion that most everyday speeches are really "too slow" when compared to the speed at which the brain processes information. Moderately time compressed messages, then, may simply be closer to brain's "preferred" rate of processing information and, thus, are approaching some sort of optimum level of information processing. Another possible explanation argues that time compression inhibits the ability to counterargue, which leads to a greater susceptibility to persuasion.

Author's Note. This research was supported in part by a grant from the School of Business Administration & Economics at CSUN. Address all correspondence to H. Bruce Lammers, Dept. of Marketing, California State University, Northridge, CA 91330.

Inconsistent research findings and replication failures suggest, however, that these explanations are inadequate (e.g., Lautman & Dean 1983; Murphy, Wilcox, & Hardy 1986; Nickell & Pinto 1984; Schlenger, Alwitt, McCarthy, & Green 1983). Perhaps a more comprehensive way of looking at time compression effects is through the Elaboration Likelihood Model (ELM) of Persuasion (Petty & Cacioppo 1986; Petty, Cacioppo, and Schumann 1983). According to the ELM, many message factors are peripheral cues which have their greatest impact when the audience is processing the message in a low involving manner. For example, Park and Young (1986) found that background music in a television commercial affected attitudes in a positive way when the message recipients were relatively uninvolved in the advertisement. When the recipients were processing the advertisement under high involvement, however, background music did not have a facilitative effect on the persuasiveness of the advertisement. According to the ELM, when message recipients are highly involved in a message topic, they focus more on the central cues (e.g., the relative strength of the arguments and logic in the message) rather than on the peripheral cues (e.g., the background music).

In ELM terms, time compression may be primarily a peripheral cue which matters most when message recipients are not highly involved in the act of processing an advertisement. Under high involvement, however, time compression effects should be attenuated. This was suggested recently by Petty and Cacioppo (1986, p. 35) in their related discussion of message speed effects on persuasion. The present study tests this ELM hypothesis.

The involvement level of the message recipients plays a large role in the ELM and is often recorded by psychologists (e.g., Petty, Cacioppo, & Schumann 1983) to be one of the most important constructs that affect information processing. Yet, the operationalism of involvement has proven to be controversial and frustrating. (For a good review of the problems associated with operationalizing involvement, see Zaichowsky 1986).

One way to manipulate involvement may be by manipulating the recipients' level of self-focused attention. Self-focused attention refers to the direction of one's attention to one's self and one's own attitudes and behaviors as opposed to the direction of attention to the external environment. Self-focused attention is the cornerstone of self-awareness theory (Duval & Wicklund 1972) and is a powerful formulation purported to explain a diverse set of social psychological phenomena. [Carver and Scheier (1981) have recently incorporated the essence of the self-awareness theory into their more comprehensive "control theory of human behavior."] More relevant to the present study is the notion that self-focused attention can increase the salience of

one's own behavior and of one's own "real," centrally based attitudes toward stimuli. In short, self-focused attention may well have the effect of increasing one's personal involvement level and commitment to whatever task is at hand. What is unclear, however, is what should be the direction of the effect of self-focused attention. Some empirical evidence suggests that self-focused attention enhances or exaggerates the effects of other variables in a persuasion context (e.g., Fenigstein, 1979). For example, if time compression has a positive impact on persuasion, then recipients who are highly self-focused should show an even greater persuasion effect than recipients who are less self-focused. On the other hand, the ELM predicts that high levels of self-focused attention (i.e., high involvement) should attenuate, rather than accentuate, the effects of time compression. This prediction is derived from the presumption that high self-focused attention enhances an orientation toward central persuasion cues, while low self-focused attention promotes a peripheral cue orientation. A major purpose of the present study was to test these two alternative and competing hypotheses about the effects of self-focused attention and time compression on attitudes toward the message.

Method

Experimental Design and Subjects

The design of the experiment was a 3 X 2 completely randomized factorial with Time Compression (0% vs. 20% vs. 40%) and Self-Focused Attention (Low vs. High) as the between subjects factors. One hundred and four business majors volunteered to serve as subjects in the experiment.

Procedure

The subjects were asked to "listen to a radio advertisement" and to give their evaluations of it. The advertisement was an authentic but unfamiliar industrial advertisement for an unfamiliar product (Eratone Soundsheets). The advertisement had been compressed by 40% (High Compression), 20% (Low Compression), or 0% (No Compression). The apparatus used to compress the advertisement was a Lexicon Varispeech II Compressor.

While listening to the advertisement, the subjects were either being obtrusively videotaped (High Self-Focused Attention) or were not being videotaped (Low Self-Focused Attention). The subjects in the high self-focused attention group were told that the videotaping was being done to record "their nonverbal reactions to the advertisement." This particular method of manipulating self-focused attention has been used with considerable success in psychological research (cf. Carver & Scheier 1981; Davis & Brock 1975; Duval & Wicklund 1972). No subject expressed disbelief of the cover stories.

After subjects listened to the advertisement, they completed a questionnaire containing the dependent measures of cognitive responses, attitude toward the advertisement, attitude toward the product, and the manipulation of self-focused attention. Subjects were then fully debriefed and thanked for their participation.

Results

Unless otherwise noted, statistical analyses involved computing 3 x 2 between-subjects analysis of variance (ANOVA) on each of the dependent measures and manipulation check.

Manipulation Check on Self-Focused Attention

The manipulation of self-focused attention was effective. The high self-focused subjects rated themselves as being more self-conscious than did the low self-focused subjects, [Means of 4.31 and 2.33, respectively, on a 9-point scale, $F(1, 98) = 26.29$, $p < .001$.]

Attitude Toward the Advertisement

Attitude toward the advertisement was measured by having the subjects rate the advertisement on a set of 10 Semantic Differential-like scales containing the following adjective pairs: "very bad-very good," "very fast-very slow," "very high quality-very low quality," "a piece of junk-a piece of art," "very deceptive-very undeceptive," "very unbelievable-very believable," "very persuasive-very unpersuasive," "very dull-very exciting," "very sexy-very unsexy," "very complex-very simple." A principal components factor analysis of these 10 items (with Varimax Rotation) yielded a significant factor which accounted for 75% of the explained variance. A factor score for each subject was calculated by summing responses to the items which loaded at least .40 on the primary factor. Those heavy loading items were: "very good," "very high quality," "piece of art," "very undeceptive," "very honest," "very believable," and "very persuasive." (Reverse scoring was, of course, taken into account where necessary.) The ANOVA on the factor scores yielded a significant 2-way interaction effect, $F(2, 98) = 4.13$, $p < .019$. The shape of this interaction is shown in Figure 1. No other ANOVA effects on this variable were significant.

Cognitive Responses

Cognitive responses were measured by having subjects "list any thoughts, ideas, or feelings" they had about the advertisement they had just heard. A two minute maximum time limit was imposed on this thought-listing session. After subjects had completed all other dependent measures they were asked to go back over the thoughts they had listed and rate each one on a 9-point scale according to how favorable it was toward the advertisement. Thoughts which were rated from 7 to 9 on the 9-point scale were coded as proarguments. Thoughts which were rated from 1 to 3 on the 9-point scale were classified as counterarguments. And, thoughts which were rated from 4 to 6 on the 9-point scale were classified as neutral/irrelevant arguments. This method of collecting and categorizing cognitive responses is fairly standard in cognitive response research (Lammers 1985; Petty & Cacioppo 1986).

Pro- to Counterarguing Ratio. The ANOVA on the ratio of proarguing to counterarguing yielded a significant interaction, $F(2, 98) = 3.85$, $p < .024$. The pattern of this interaction essentially mirrored the

FIGURE 1:
The Effects of Self-Focused
Attention and Time
Compression on
Attitude Toward the
Advertisement

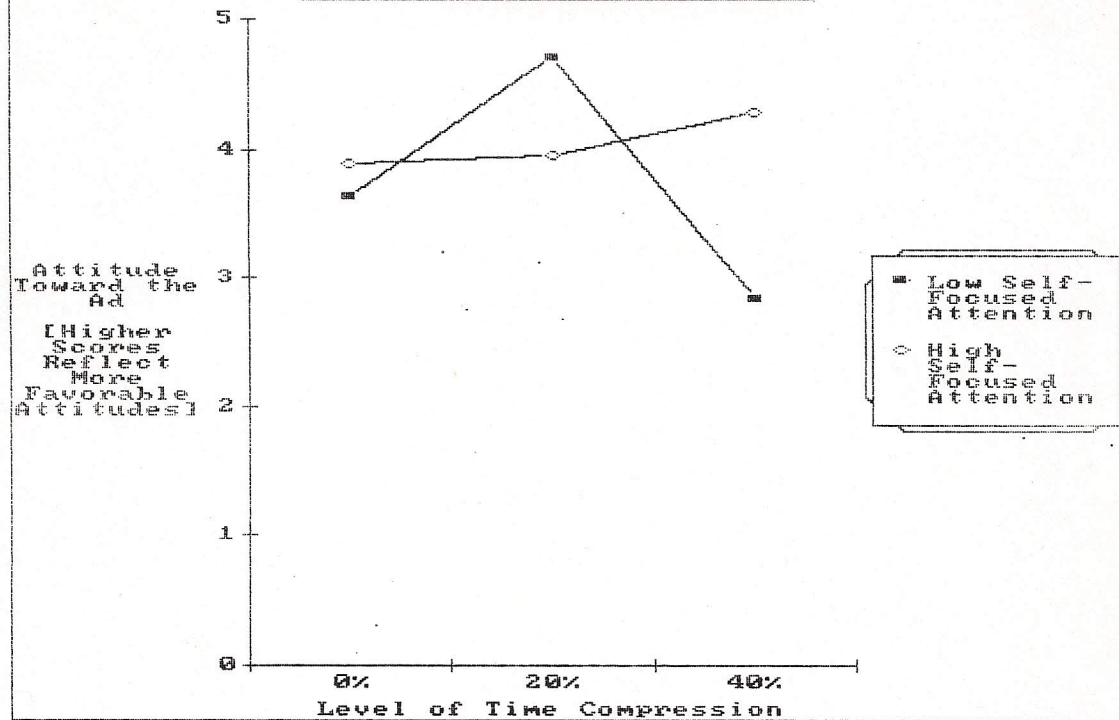
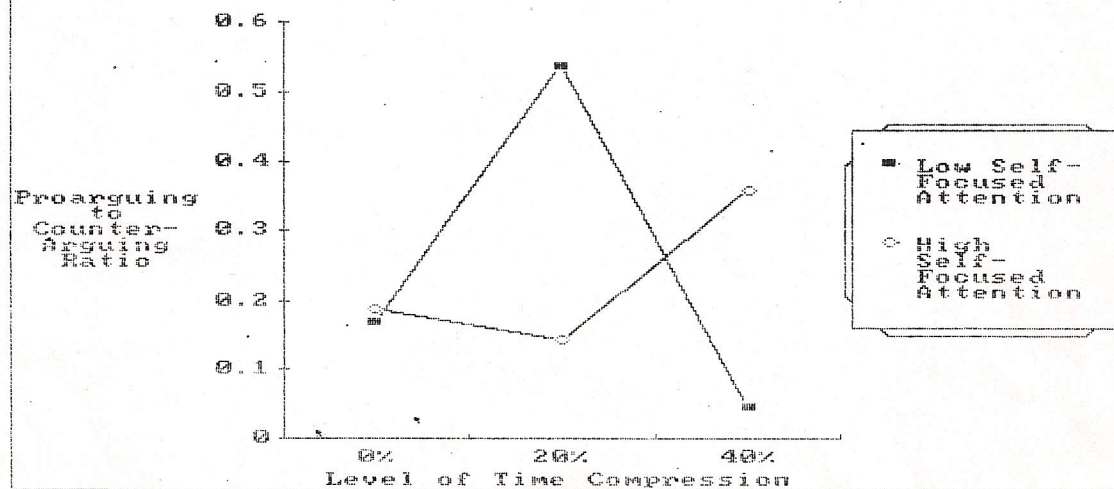


FIGURE 2:
The Effects of Self-Focused
Attention and Time
Compression on Proarguing to
Counterarguing Ratio



interaction found on attitude toward the advertisement. (See Figure 2 for this interaction.) No other effects on this variable were significant.

Total Argumentation. Somewhat surprisingly, a main effect of time compression on the total number of cognitive responses generated by each subject indicated that time compression increased cognitive responding [0% Compression $M = 4.00$, 20% Compression $M = 4.58$, 40% Compression $M = 5.22$, $F(2, 98) = 3.36$, $p < .039$]. No other effects on this variable were significant.

Although time compression is sometimes thought to inhibit cognitive responding, a facilitative effect may also be predicted. Cognitive dissonance theory, for example, would argue that time compression increases the cognitive effort required to process a message. This increased effort along with subsequent attempts to reduce effort-induced dissonance may lead to increased levels of cognitive responding. In the present study, the total amount of cognitive responding is not as critical to the ELM as are the various measures of the relative amount and types of cognitive responding (e.g., the ratio of proarguing to counterarguing reported above).

Attitude Toward the Product

Attitude toward the product being advertised was measured by having subjects rate the product on a set of seven Semantic Differential-like scales: "very good-very bad," "very fast-very slow," "very weak-very strong," "very high quality-very low quality," "very reliable-very unreliable," "very under-priced-very over-priced," and "very complex-very simple." As with the measure of attitude toward the advertisement, factor scores were computed and subjected to analysis. Attitude toward the product has been found in some studies to be partially determined by attitudes toward the advertisements for that product (see MacKenzie, Lutz, & Belch 1986). In the present study, there was indeed a significant correlation between attitude toward the product and attitude toward the advertisement ($r = .58$, $p < .05$). However, the ANOVA effects on attitude toward the product were all nonsignificant. Thus, the interactions on attitude toward the advertisement and on cognitive responses were not followed by a similar interaction on attitude toward the product. Perhaps the experimental manipulations and variables were not strong enough to go far enough down the hierarchy of responses to affect attitudes toward the product.

Discussion

The results of this experiment support the predictions of the Elaboration Likelihood Model (Petty & Cacioppo 1986). Time compression effects were observed only when subjects were under low levels of self-focused attention. As compression for these subjects increased from 0 to 20%, both attitudes toward the advertisement and cognitive responses (pro-to counterarguing ratios) became more positive, but as compression increased further from 20 to 40%, the attitudes toward the advertisement and the cognitive responses dropped to their lowest level of favorableness. On the other hand, the attitudes and cognitive responses of high self-focused attention subjects remained relatively stable across

exposure to messages varying in time compression.

The attenuation of the time compression effects by high self-focused attention strongly suggests that time compression indeed acts as a peripheral cue, not a central cue, in the persuasion process. Time compression may play a greater role when message recipients are relatively low self-focused or low involved. In that regard, the Elaboration Likelihood Model stands out as the most comprehensive and parsimonious explanation for the observed interactions.

The present study does not adequately address, nor attempted to, the issue of why time compression may have a curvilinear effect on persuasion. This curvilinear relationship is, however, consistent with the findings of the LaBarbera and MacLachlan studies (LaBarbera & MacLachlan 1979; MacLachlan & LaBarbera 1978). Perhaps moderate levels of time compression are moderately arousing. Moderate levels of nonspecific arousal are often presumed to be more pleasant and to increase task performance and cognitive processing (e.g., Berlyne 1960). Higher levels of compression and arousal may, however, be too aversive and debilitating. (Similar outcomes are also predicted by attentional conflict approaches which do not rely on drive mechanisms as mediators, e.g., Kahneman 1973 and Cohen 1978.) If the pro- to counterarguing ratios are indicators of affect, then the results of this study support such speculation.

Finally, the results of the present study also support the contention of the time compression researchers that time compression interacts with situational and individual factors (Schlinger, Alwitt, McCarthy, & Green 1983). Time compression does affect attitudes, but the nature of the effect depends upon such other variables as the self-focused attention level of the audience. It would seem, then, that future research on time compression will be more productive when aimed primarily at explaining the significant interactions, rather than at questioning the validity of time compression effects themselves.

References

- Berlyne, D. E. (1960), Conflict, Arousal and Curiosity, New York: McGraw-Hill.
- Carver, Charles S. and Michael F. Scheier (1981), Attention and Self-Regulation: A Control Theory Approach to Human Behavior, New York: Springer-Verlag.
- Cohen, S. (1978), Environmental Load and the Allocation of Attention, in A. Baum, J. E. Singer, & S. Valins (Eds.), Advances in Environmental Psychology, 1, Hillsdale, NJ: Erlbaum, pp. 1-29.
- Davis, Deborah and Timothy C. Brock (1975), Use of First Person Pronouns as a Function of Self-Awareness and Prior Feedback, Journal of Experimental Social Psychology, 11, 381-388.
- Duval, Shelley, & Robert A. Wicklund (1972), A Theory of Objective Self-Awareness, New York: Academic Press.

Fenigstein, Alan (1979), Self-Consciousness, Self-Attention, and Social Interaction, Journal of Personality and Social Psychology, 37, 75-86.

Kahneman, D. (1973), Attention and Effort, Englewood Cliffs, NJ: Prentice-Hall.

LaBarbera, Priscilla & James MacLachlan (1979), Time Compressed Speech in Radio Advertising. Journal of Marketing, 43, 30-36.

Lammers, H. Bruce (1985), A Multitrait-Multimethod Analysis of the Validity of Cognitive Response Assessment Procedures, in E. Hirschman and M. Holbrook (Eds.), Advances in Consumer Research, Vol. XII, Provo, UT: Association for Consumer Research.

Lautman, Martin R. and K. Jeffrey Dean (1983), Time Compression of Television Advertising, in Larry Percy and Arch G. Woodside (Eds.) Advertising and Consumer Psychology, Lexington, Mass: D. C. Heath & Company.

MacLachlan, James & Priscilla LaBarbera (1978), Time Compressed TV Commercials, Journal of Advertising Research, 18, 11-15.

MacLachlan, James & Michael H. Seigel (1980), Reducing the Costs of TV Commercials by Use of Time Compression, Journal of Marketing Research, 17, 52-57.

MacKenzie, Scott B., Richard Lutz, & George Belch, The Role of Attitude Toward the Ad as a Mediator of Advertising Effectiveness: A Test of Competing Explanations, Journal of Marketing Research, 23, 130-143.

Nickell, Gary S. and John N. Pinto (1984), The Effects of Compressed Speech on Listener Attitudes, Psychology and Marketing, 1, 49-58.

Park, C. Whan & Mark Young (1986), Consumer Response to Television Commercials: The Impact of Involvement and Background Music on Brand Attitude Formation, Journal of Marketing Research, 23, 11-24.

Petty, Richard E. and John T. Cacioppo (1986), Communication and Persuasion: Central and Peripheral Routes to Attitude Change, New York: Springer-Verlag.

Petty, Richard E., John T. Cacioppo, & David Schumann (1983), Central and Peripheral Routes to Advertising Effectiveness, Journal of Consumer Research, 10, 135-146.

Petty, Richard E., Thomas M. Ostrom, & Timothy C. Brock (1981), Cognitive Responses in Persuasion, Hillsdale, NJ: Lawrence Erlbaum, Inc.

Schlinger, Mary Jane Rawlins, Linda F. Alwitt, Kathleen E. McCarthy, and Leila Green (1983), Effects of Time Compression on Attitudes and Information Processing, Journal of Marketing, 47, 79-85.

Zaichowsky, Judith L. (1986), Conceptualizing Involvement, Journal of Advertising, 15, 4-14.