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Program elaboration effects on the processing and effectiveness of television commercials

Lord, Kenneth Richard, Ph.D.
The Ohio State University, 1988

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PROGRAM ELABORATION EFFECTS ON THE
PROCESSING AND EFFECTIVENESS OF TELEVISION COMMERCIALS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Kenneth R. Lord, B.A., M.A.

* * * *

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To My Wife Brenda
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CHAPTER I
INTRODUCTION

PROBLEM STATEMENT

A television commercial interrupts the impending demise of a valiant crime fighter, a time out on the one-yard line in a critical football game, or a highly involving news report. These scenarios are not uncommon in the environment which confronts the viewer of contemporary television programming. However, their desirability and effects on the processing of commercial messages are unclear and subject to some debate. An issue of growing concern to marketers today is that of context effects; i.e., the impact of a program, article or setting on consumer processing and assimilation of marketing communications placed therein. The specific focus of this dissertation lies in understanding the effects, positive and negative, of a television viewer's involvement in, attention to and elaboration of program content as a commercial message comes onto the screen. Consider, for example, the following scenario:

Ed, a boisterous, slovenly and ill-mannered salesman traveling the back roads of his territory, makes a stop at a regular point of call -- a small town cafe. On this occasion, the usually gregarious patrons of the establishment avoid their visitor -- except the waitress, whose
flirtatious manner rapidly turns the peddler's thoughts away from his wares. As Ed leaves the table briefly, the waitress is seen adding a powdered substance to his drink. Unknown to the salesman, his luncheon companion is the mother of a young man who had died a month earlier, the victim of an industrial accident who had been unable to reach the hospital in time because Ed had driven him off the road in what he had perceived as a contest for command of the highway. Ed returns to the table, finishes his drink, and is joined by the young man's father. In split-second timing, he learns of the boy's fate and the identity of his companion, and discovers traces of an unidentified substance in the bottom of his glass. A look of panic begins to spread across Ed's face under the assault of this new information.

Then Ed's visage fades from the screen, replaced by an arctic scene, as a commercial narrator's voice says, "At 35 degrees below zero, this is what you can do with a banana."

This scene illustrates the interruption of a highly involving, suspenseful or thought-provoking program segment to expose viewers to an advertising message. As suggested earlier, this commercial-placement phenomenon does not appear to be relegated exclusively to the domain of the suspense thriller. Episodes from virtually any program format, from drama to sports shows and comedies to documentaries, may actively engage the viewer. The element of commonality among such diverse scenes is presumably the intensified level of program-relevant thought they induce in the viewer as the advertisement begins.

While this assumption of increased viewer elaboration has intuitive appeal, and enjoys ample anecdotal evidence from scenes such as that described above, no research to
date has empirically established that commercials appear in positions which induce intense or varying levels of cognitive activity. Hence an initial concern of this investigation must be the objective, generalizable demonstration of that phenomenon across different types of programs.

While viewers may be accustomed to being thrust about from moment to moment on a roller-coaster ride over life-and-death perils and advertising jingles, the desirability and effects of such a practice are unclear and subject to some debate. Does viewers' ongoing thinking about television program content render advertisements more or less effective, or is its effect negligible or nonexistent?

If such a state of heightened arousal results in the availability of more cognitive resources and motivates an intensified level of processing, placing commercials in program segments which induce such high levels of elaboration may enhance their effectiveness. That is, viewers' cognitive arousal may place them in a state of readiness to receive and process incoming information to a greater extent than would occur under less arousing conditions.

Alternatively, interruption of programs at critical moments may arouse psychological discomfort in the viewer, which manifests itself as frustration or anger. These emotions may then be transferred to the offending sponsor,
with the result that high levels of program elaboration are associated with resentment or hostility toward the advertised product. Such feelings are clearly the antithesis of the desired response to commercial messages.

A third possibility is that program elaboration may enhance or inhibit a commercial's effectiveness, depending upon the nature of the thoughts elicited by the ad. A commercial which is consistent with the viewer's prior beliefs and values may elicit positive thoughts which reinforce or strengthen an existing favorable attitude. If program elaboration were to interfere with the generation of such commercial-relevant thoughts, it may inhibit persuasion. Alternatively, a counterattitudinal message may result in negative thoughts (e.g., counterarguments and source derogations) which are contrary to the advertiser's interests. The suppression of those thoughts may enhance persuasion.

Finally, it may be that program elaboration has no direct effects on commercial processing. Rather, the effects of program environment on commercial processing may be a result of noncognitive factors. For example, viewers' enjoyment of and positive attitude toward a program may place them in a positive emotional state which enhances the likelihood of accepting messages presented in that context, while dislike for a program may have the opposite effect,
regardless of the amount of thought induced by the program action.

LITERATURE ON PROGRAM CONTEXT EFFECTS

Empirical findings regarding context effects of television programming are varied. Among the context variables researchers have attempted to measure or manipulate in television advertising processing studies are liking for the program (Smith 1956, Clancy and Keveskin 1971, Leach 1980), type of program (Schwerin 1958, Kennedy 1971, Burke 1978), timing of the commercial within the program (Barclay, Doub and McMurtrey 1965, Steiner 1966, Gruber 1966), and program involvement (Bryant and Comisky 1978; Soldow and Principe 1981; Krugman 1983; Thorson, Reeves, Schleuder, Lang and Rothschild 1984; Oberman and Thorson 1985). Efforts at identifying differences in viewer recall of commercials or attitude toward products advertised therein on the basis of whether the advertisements occur early or late in a program, or in a comedy or suspense format, fail to identify any cognitive mechanism which may account for observed differences. Manipulations of program involvement, on the other hand, represent an attempt to trace program context effects to some underlying differences in consumer information processing levels. Thus the effectiveness of a commercial placed midway through a
suspense program is viewed as a function of viewers' involvement in the program, rather than a simple consequence of the number of minutes which have elapsed or of inherent differences between program types. Yet even the research adopting that orientation has to date failed to examine specific cognitive mediators of program involvement effects, such as the amount or type of thought elicited under varying conditions.

Results of program context studies reveal marked inconsistency. For example, it has been argued by some that a high level of program involvement should inhibit viewer processing of commercial messages (Bryant and Commisky 1978, Soldow and Principe 1981, Thorson et al. 1984, Oberman and Thorson 1985). An alternative view (Krugman 1983) is that commercials increase in their persuasive impact as the level of interest in the program goes up.

PROCESSING INFLUENCES IN A TELEVISION CONTEXT

An understanding of how viewers process television program and commercial stimuli is of importance to the advertising and television industries. Industry personnel are now demonstrating increasing concern with developing more refined and sensitive television ratings (as evidenced by Neilson's recent shift from its conventional data collection devices to the controversial "people meters") in a quest for more and better information about who is
watching American network programming. Prior research, while inconclusive in its results, suggests that an issue of equal importance to "who is watching" is "how are they watching." At what level are cognitive resources allocated to the task of television viewing, and how are they distributed among program and commercial stimuli.

It is proposed that program positions vary in their level of viewer cognitive resource activation, making some positions more favorable than others in terms of the amount of capacity available for processing commercial messages. The demonstration of such differences would suggest that more attention to the effects of commercial placement, and to commercial characteristics which interact with the program environment, may yield improved results relative to viewer processing of those messages.

Some variables which may influence consumers' ability and motivation to process commercial messages, and the way in which such processing occurs, include the amount of program-relevant thought occurring during a commercial break, the advertisement's ability or inability to rapidly capture the attention of its audience, and viewers' prior attitude toward the advertised product or issue. As a commercial message appears on the television screen, ongoing program-relevant thought may interfere with viewer processing of the content of the advertisement. However, such a program-induced processing deficit may be overcome if
a dramatic device appearing immediately prior to or at the 
beginning of the commercial succeeds in shifting the 
viewer's attention away from the program. Whether it is 
desirable or undesirable from the perspective of the 
advertiser to encourage or inhibit the thorough processing 
of a commercial may depend upon the prior attitude of the 
viewers. Those approaching a commercial with a positive 
attitude may generate favorable thoughts about the 
advertised product or issue if they thoroughly process it. 
Alternatively, those who have a negative prior attitude may, 
if commercial processing proceeds uninhibited, generate 
negative thoughts which could work against the 
accomplishment of the advertiser's persuasive objectives. A 
more thorough discussion of these variables and their 
anticipated effects appears later in this chapter.

OBJECTIVES

This research seeks to accomplish certain specific 
objectives: (1) establish whether commercials actually 
appear in program positions characterized by intense or 
varying levels of cognitive activity; (2) determine whether 
program elaboration enhances or interferes with the 
processing of commercial content; (3) assess whether program 
elaboration effects differ depending on whether the 
advertising appeals are pro- or counter-attitudinal; (4) 
ascertain whether the insertion of a dramatic attention-
engaging device in commercials interrupts program elaboration to orient viewers’ cognitive activity in the desired direction or creates further distraction; and (5) identify the cognitive processes which account for the observed effects of program elaboration on commercial processing.

The above objectives are addressed through an experimental investigation of the effectiveness of commercials placed within program environments of varying elaboration potential. The study also examines the effect of including (or excluding) an attention-engaging device in the advertisement, and the impact of prior viewer attitude toward the advertised product.

A COGNITIVE RESPONSE MODEL OF TELEVISION VIEWING

Any attempt to resolve the apparently discrepant outcomes generated by prior research in this area must address the underlying consideration of how viewers process television images and information. The model which serves as the basis for hypothesis development and testing in this study is based on cognitive response theory (Greenwald 1968; Petty, Wells and Brock 1976; Petty, Ostrom and Brock 1981). A statement of operational definitions for some key concepts follows. Thereafter, the model which serves as the premise for this research is developed. Figure 1 contains a graphic
Figure 1: A Cognitive Response Model of Television Viewing
representation of the model. (For supporting literature, refer to chapter 2.)

Definitions

**Cognitive Response.** The definition of "cognitive response" accepted in this study is provided by Cacioppo, Harkins and Petty (1981, p.37): "a unit of information pertaining to an object or issue that is the result of cognitive processing." Cognitive responses reflect a message recipient’s attempts to relate the new information to existing attitudes, knowledge and feelings (Greenwald 1968).

For the current study, cognitive responses were evaluated on the following dimensions: (1) valence -- i.e., positive (favorable toward the topic of the ad), neutral (neither favorable nor unfavorable), or negative (unfavorable); (2) cognitive/affective -- i.e., thoughts which are not affect laden, emphasizing functional performance or utilitarian motives, versus those representing the expression of emotions, aesthetic considerations or values (Park and Young 1986); and (3) message/own -- i.e., responses closely related to commercial information, versus more personal thoughts about the topic of the ad (Craig, Sternthal and Leavitt 1976).
Elaboration. For the purposes of the present study, elaboration is conceived as the generation of stimulus-relevant thought. A given program segment may therefore be relatively high or low in the inducement of program elaboration, meaning that it is characterized by a stronger or weaker propensity to elicit thoughts relevant to program content.

The Model

Capacity Constraints. Central to an understanding of program context effects on the processing of television commercials is a recognition of the capacity constraints of short-term memory (STM). While there is no consensus on a precise size of working memory (in terms of how many pieces of information can be stored in it at a single time), and indeed that capacity level may vary between individuals and developmental levels, it is clearly finite and quite limited. A piece of information may be attended to, encoded, rehearsed, elaborated upon, and ultimately stored in long-term memory (learned) or pass out of STM in an irretrievable fashion (forgotten). But while the number of stimuli in the external environment which confront an individual's senses at any waking moment is enormous, in view of this capacity limitation one must selectively isolate those few which become the subject of STM operations. That selection process may be voluntary or
involuntary; i.e., an individual may purposely direct his/her attention and cognitive resources toward a given stimulus, or it may impose itself upon his/her thoughts by virtue of some element of surprise or contrast with competing stimuli (as, for example, a ringing telephone interrupts a conversation in the same room). And external stimuli are not the only competitors in the cognitive marketplace. At the same time that an individual has access to a seemingly infinite variety of external sensory stimuli, s/he also has the ability to draw upon a rich internal store of previously encoded experiences, thoughts, sensations and images.

Whether a television viewer engages in that activity for the purpose of obtaining entertainment or information, s/he is purposely committing at least some of those limited cognitive resources to the processing of the program. As long as the viewer remains at a sufficiently low level of arousal and motivation to allocate only a small portion of available cognitive resources for that purpose, s/he should possess the ability (i.e., adequate unused STM capacity) to engage in continuous processing of the changing television wave pattern -- whether it contains program or commercial content. But what happens when something within the program arouses the viewer, either voluntarily or involuntarily, to a state of increased processing motivation and cognitive activity? As simple attention and encoding give way to the
more complex tasks of rehearsal and elaboration, more
cognitive resources are called into action. The amount of
STM capacity available for the processing of subsequent
television action must therefore be reduced. When that
subsequent action is a commercial message, aired by a paying
sponsor in the hope of reaching a receptive audience, what
is the result?

**Elaboration and Recall Effects.** Certain video segments
can cause viewers to cognitively rehearse program action,
argue with central characters or themes, anticipate a future
resolution, or otherwise elaborate upon program content.
Likewise, commercial messages may induce cognitive responses
which are in favor of or opposed to communication content,
cognitive or affective in their orientation, and message
restatements or more personalized thoughts.

Elaboration of either variety -- focused on program or
message content -- requires the utilization of limited
cognitive resources. To the extent that program-specific
cognitive activity continues when an advertisement comes on
the screen, it may leave insufficient resources available
for the efficient processing of the commercial message.
Hence television programming characterized by high viewer
elaboration may result in the suppression of commercial-
relevant cognitive response activity. Furthermore, such a
cognitive distraction from the rehearsal and elaboration of
commercial content may result in the transfer of fewer
message elements to long-term memory (relative to that which would occur in a less demanding program environment). As a consequence, the level of recall for the advertisement may be lower.

**Attitude and Behavioral Intention Effects.** As noted earlier, prior studies have obtained inconsistent results in terms of the attitudes and behaviors associated with varying levels of program involvement. This implies that involvement in or elaboration of program content alone cannot explain attitudinal and behavioral responses induced by televised stimuli. While the utilization of cognitive resources for the elaboration of thought-provoking program content creates, in essence, a processing deficit with respect to the competing commercial message, one must look beyond a main effect of heightened program-relevant thought to fully account for the cognitive, affective and conative consequences of television viewing.

Cognitive response activity serves as a mediator of persuasion. Yet it is not only the overall level of stimulus-relevant cognitive activity which renders a message more or less persuasive; it is also the nature of the dominant cognitive response. To the extent that a viewer's thoughts are predominantly positive (in agreement with the persuasive message), his/her attitude and behavioral intention are likely to be swayed in a direction consistent with the message advocacy. Negative thoughts (opposed to
the position advocated by the commercial), by contrast, may inhibit persuasion, or even sway viewers' attitudes and intentions in the opposite direction.

Distracting communication recipients during exposure to a persuasive message has been found to suppress the dominant cognitive response (Petty, Wells and Brock 1976). Therefore, to the extent that ongoing thinking about the television program cognitively distracts the viewer at the time of exposure to a commercial, it may serve to enhance or inhibit persuasion by interfering with commercial-relevant cognitive response generation. If the dominant cognitive response thus suppressed is positive, its inhibition should be associated with less positive responses to attitudinal and behavioral intention measures than if commercial elaboration proceeds unabated. Distracting a viewer from the generation of negative responses, on the other hand, should enhance persuasion.

In the context of the program elaboration issue, a high level of program-relevant thought serves as a cognitive "distractor." Thought-provoking program content may leave viewers with little motivation to abandon their cognitive focus (on the program) at the same time that it minimizes their ability (by virtue of the engagement of most available cognitive resources) to simultaneously process a competing stimulus (a commercial).
Therefore, the impact of program elaboration on viewer attitudes toward and intention to engage in behaviors advocated by a commercial must be viewed as a function of the dominant cognitive response elicited by an advertisement in the absence of the distraction of program-relevant thought. Viewers whose primary response to a commercial message is positive should be more favorably affected by such an advertisement when it faces minimal competition for cognitive resources — i.e., when program elaboration is low. When the dominant cognitive response is negative, an ad should attain maximally persuasive impact by ensuring the suppression of such thoughts — i.e., high program elaboration. And since prior attitude often mediates the valence of the dominant cognitive response, it is reasonable to assume that viewers with a prior positive attitude toward the topic of an advertisement will be more favorably affected by the commercial if it appears in a program segment which includes low levels of elaboration, whereas those approaching the message with a negative predisposition will demonstrate optimal levels of persuasion in a high-elaboration program setting.

Overcoming Processing Deficits. Prior studies have neither identified the cognitive mechanism responsible for findings of reduced commercial recall associated with high levels of program involvement, nor suggested what elements within the advertiser's control may be manipulated to
alleviate or compensate for such an occurrence. As suggested above, it may not always be desirable to reverse or otherwise moderate the effects of high program elaboration. But when such competing cognitive activity has the effect of reducing the amount of persuasion induced by a commercial message (i.e., when the dominant cognitive response to the advertisement is positive), it would be to the sponsor's advantage to identify a strategy which may lead the viewer to alter the focus of his or her thoughts away from the program and toward the advertisement.

The level of program elaboration presumably varies from segment to segment, and even from moment to moment, and the advertiser has little control over the determination of the precise instant at which program action will be interrupted for the insertion of the commercial message. Therefore, a further important question is what, if anything, can be done for advertisers whose ads may be placed at high elaboration points, to induce viewers to switch from program to commercial processing. The tool most available for the advertiser's strategic use in overcoming any negative effects of program elaboration is the commercial itself. How then can an advertisement be manipulated to alter the cognitive focus of a viewer whose limited attentional capacity is centered upon the preceding program content?

A sudden change in the audio and/or visual stimulus which confronts the viewer may serve to break the continuity
of his/her cognitive focus. Much as a ringing telephone momentarily disrupts a conversation in the same or an adjacent room, sometimes in mid-sentence, a novel and dramatic stimulus placed at or immediately prior to the beginning of a commercial message may abruptly turn viewers' thoughts away from the program content which served as the focus of their attention and cognitive effort an instant earlier. In addition to interrupting program-relevant thought, such an unexpected and novel stimulus may induce uncertainty in the viewer relative to the forthcoming message, and thereby arouse his/her motivation to process it in an effort to alleviate or reduce uncertainty.

Accordingly, it is proposed as a final element of the model that the insertion of an attention-engaging device at the beginning of or immediately prior to a commercial will overcome processing deficits associated with high levels of program elaboration. Consequently, under conditions of extensive program elaboration, viewers approaching the advertising message with a prior positive attitude (and therefore prone to generate positive cognitive responses) will demonstrate increased persuasion when such an attention-engaging device is present. By contrast, those with a negative attitude (implying a propensity toward the generation of negative cognitive responses) should manifest reduced persuasion in the presence of an attention-engaging device. The effectiveness of such a device as a mediator of
program context effects, and specifically in overcoming the
distraction of program elaboration, has not been examined in
prior studies.

OVERVIEW OF REMAINING CHAPTERS

The next chapter contains a review of literature
relevant to program context effects and the cognitive
processes which might explain them. The research hypotheses
are developed in chapter 3. The fourth chapter includes a
discussion of the research design, stimulus development and
experimental procedure. Chapter 5 contains the results of
the experiments. The final chapter discusses the
implications of those results with respect to the model
developed in this chapter, evaluates the study’s level of
success in the accomplishment of its objectives, draws
managerial implications, and outlines proposed directions
for future research.
CHAPTER II
LITERATURE REVIEW

Television program elaboration effects per se have elicited only a modest amount of attention in the literature to date. However, the conceptual foundations and empirical findings which could be related to this phenomenon are relatively diverse, spanning the marketing, psychology and communication disciplines. A review of the relevant literature proceeds in three stages: (1) a detailed assessment of prior studies of commercial positioning and its effect on the processing of televised advertising messages; (2) a review of selected studies dealing with cognitive processing at a broader level, which provide the conceptual underpinning for the model of television viewing set forth in the introductory chapter and identifies some unresolved issues addressed by this research; and (3) an examination of a variety of approaches to the measurement of relevant constructs.

COMMERCIAL POSITIONING STUDIES

A variety of contextual factors have come under scrutiny in an effort to explain the impact of programming on the processing of television commercials. Research
efforts in this area have evolved over time. Early studies (1960s) focused primarily on the temporal placement of commercials; i.e., how early or late in a program the advertisements appeared. With the growing awareness of the impact of "involvement," later studies (1970s and 1980s) approached commercial positioning effects as a function of viewers' involvement in program content. A review of commercial placement studies proceeds chronologically, with temporal placement investigations considered first, followed by research into program involvement effects.

Temporal Placement

Barclay, Doub and McMurtrey (1965) investigated the comparative effectiveness of commercials on the basis of positioning within a program. In this regard, they defined three placement conditions: "spot commercials" were positioned between programs or between half hours of programs lasting an hour or longer; "clutter commercials" occurred early or late in programs or half-hour segments thereof; and "island commercials" were aired near the middle of a program or half hour. Another variable examined was program type, including serial, situation comedy, quiz/audience participation, and other. Recall was the principal dependent measure. The researchers made no assessment of the elaboration potential of the various commercial positions or program types. Data were collected
using post-program telephone interviews with a sample generated from Chicago and suburban directories.

Results showed that in-program commercials (clutter and island combined) enjoyed an advantage over spots. Twenty percent of respondents recalled in-program advertisements, compared with thirteen percent recall of spots. Assuming some amount of cognitive processing to be a necessary antecedent of message recall, this finding might suggest that more commercial elaboration took place when the advertisements were placed within programs than when they appeared outside of a programming context. Program action, plot and thematic content often progress in such a way as to render mid-program (island) positions more involving for viewers than alternative commercial locations. However, the authors acknowledge a potential confounding with length of commercials. In-program commercials were typically 30 or 60 seconds in length, while spots generally ran for only 20 seconds. Longer commercials were shown to generate a higher level of recall than shorter messages, but there was no attempt to assess an interaction between commercial length and positioning. Furthermore, given the absence of control of respondent exposure to commercials, it seems plausible that between-program breaks would be the most likely time for viewers to turn on the television, switch channels, or find their attention diverted completely away from the images on the screen. Recent attention to the "zapping"
phenomenon (switching to another station during commercial breaks) provides evidence of this (Kaatz 1986).

With regard to program type, commercials in serial programs enjoyed greater recall than those in the other program categories, with situation comedies demonstrating the lowest level (23 percent for serial, 17 percent for situation comedy). Without a measure of program elaboration, it is difficult to make inferences about the elaboration associated with the different program types. Furthermore, the observed differences in recall may be partially attributable to dissimilarities in the commercial messages rather than the program environment in which they were placed, since the field-study approach employed in this research precluded controlling the commercial stimuli to ensure exposure to a common set of advertisements across program conditions.

Steiner (1966) observed the effect on viewer attention of differential commercial placement within a program. He assigned 325 college students the task of observing the viewing behavior of another household member over a nine-day period. To his surprise, his students reported that the subjects they observed paid greater attention to commercial clusters appearing near the end of programs than to advertisements located at program midpoints (84 percent at full attention in the closing sequence, compared to 79 percent in the middle). Lowest attention levels were
associated with the opening commercial sequence (47 percent at full attention). These findings partially clarify those obtained by Barclay et al. (1965), by demonstrating different results for commercials placed near the beginning and near the end of programs, which were grouped together as "clutter commercials" in the earlier study. Steiner fails to report whether these differences are statistically significant. The study also provides no information on processing outcomes (e.g., recall, attitude).

The observed results are amenable to a simple temporal effects explanation. As time elapses, the concerns which occupy the viewer's thoughts prior to his/her exposure to the program, and which initially minimize the likelihood of dedicating "full attention" to the televised images, may gradually give way to the electronic stimuli which are competing for the allocation of attentional capacity. This may occur as a result of the viewer's increasing distance in time from the earlier idiosyncratic thoughts, unrelated to program or commercial content, irrespective of the variance in cognitive activity levels associated with the different program segments.

Alternatively, variation in cognitive response activity may account for the observed results. By mid-program, the action is often approaching a climax, and may therefore induce program-related cognitive responses which may in turn partially distract the viewer's attention from the
commercial. By the close of the program, the action peak has typically passed and elaboration may be diminished below the point at which ongoing program-relevant thoughts would interfere with the generation of commercial-specific cognitive responses. At the same time, there may be sufficient residual involvement to maintain the viewer’s physical presence and attention to the television messages, rendering this the most favorable position for the active processing of commercial messages.

Steiner’s method of observation renders a precise interpretation of viewer behavior unattainable. For example, physical behavior associated with a viewer’s adjusting his or her position for comfort may be interpreted by an observer, but need not imply, a low level of attention. Likewise, a viewer’s thoughts may be actively engaged with reference to a topic irrelevant to the televised stimulus, and yet his or her eyes may remain steadfastly directed toward the screen in "daydreaming" fashion, causing an observer to perceive a high level of attention toward the stimulus. Given this inherent lack of observational precision, and the study’s failure to incorporate any measures of cognitive response activity, it is impossible to determine whether temporal effects, program-relevant thought, or some other explanation best accounts for Steiner’s results.
Steiner also conducted a more detailed analysis of opening commercial sequences. He found that delaying the first within-program commercial break resulted in increased attention to the advertisements. The extra time presumably allowed for the dispersion of the pre-exposure idiosyncratic thoughts mentioned above. Alternatively, one may infer from this result that ads increase in effectiveness as viewers become more interested in the program. However, Steiner's investigation of different types of prologues tends to refute such an interpretation. While Steiner expected that "a dramatic prologue would arouse, if anything, a higher attention level than would variety or other programming" (p. 283), he found the opposite. A commercial following a dramatic program introduction attracted less viewer attention than did those which appeared after less involving prologues. Though program elaboration was not assessed, there is some intuitive appeal to the notion that a dramatic prologue would be more likely to be the subject of ongoing rehearsal and cognitive response generation -- and therefore more likely to distract the viewer from the television commercial -- than would the alternative program forms which were investigated.

Gruber (1966) suggests that "there can be variation in audience . . . 'attention' at different time periods of a show" (p. 15). His conclusions are drawn from the Starch
Viewer Impression Study, which employed seventeen sixty-second commercials for ten low-priced food products, broadcast during prime time in 1964 and 1965. Viewers were contacted by phone immediately following the program containing the ads. The three positions considered were: (1) opening (within the first five minutes of the broadcast); (2) middle (approximately fifteen minutes into the show); and (3) closing (end of show). Results conformed to a linear trend, such that commercial recall "tends to increase by position as a show progresses" (p. 16).

An artifactual explanation also presents itself, however. With data collection occurring immediately after the program, results could be attributable to the differences in lag time between commercial exposure and recall measurement for the three positions. It is not clear that the lasting impact of temporal positioning, the assessment of which would require delayed data collection, would be consistent with results obtained in this manner.

Gruber also measured the proportion of program viewers who were not "tuned in" (reported having their sets turned off or set at a different station) during a particular commercial break. He found that group to be largest in the opening position -- a result which could account for the Barclay, Doub and McMurtrey (1965) finding of low recall of commercials thus placed.
Neu (1966) notes the problem inherent in researchers' efforts to establish which temporal position in a television program would be most conducive to viewer processing of commercial messages (p. 19):

Whether a commercial obtains higher recall when it appears at the beginning, in the middle or at the end of the program is actually an oversimplification of the problem. A commercial that appears in the first minute of the show can obtain a different recall score than the same commercial when placed in the third minute.

In other words, it is not the timing of a commercial alone that determines the effect of the program environment on viewers' processing of commercials. To the extent that equivalent messages placed a brief two minutes apart may be differentially affected by the program content in which they are embedded, it becomes incumbent upon anyone wishing to optimize such placement to identify the determinant program characteristics which drive such effects. These studies undertaken in the 1960s thus provide a contribution in that they document the occurrence of program context effects, but they fail to explain how or why such results emerge.

Program Involvement

The following two decades saw a shift in research attention away from a simple temporal placement explanation of how programming affects commercial processing. In an attempt to explain why viewer attention to and effectiveness of commercials varies across different program positions,
researchers investigated such issues as a program's level of "closure" (Kennedy 1971) and involvement potential (Bryant and Comisky 1978; Soldow and Principe 1981; Krugman 1983; Thorson, Reeves, Schleuder, Lang and Rothschild 1984; Oberman and Thorson 1985).

Kennedy (1971) treats program context effects on the processing of commercials as a function of the "drive for closure." Two assumptions underlie Kennedy's theory: first, that viewers attempt to organize their experience into a "whole pattern"; and second, that the plot affects the magnitude of the drive for closure. Hence, he hypothesized that a suspense thriller would generate a greater desire for closure than would a situation comedy because of the difference in plot. A strong drive for closure with respect to the plot would then increase "noise," which would affect "both perception of commercial material and its integration into memory" (p. 34).

Suggesting that comedies should provide a more effective vehicle for commercial placement than suspense programs, Kennedy predicted both better recall of and more positive attitudes associated with advertisements placed in the former program context. The recall hypothesis was supported, with the situation comedy generating higher brand recall scores than the suspense thriller. However, the results were mixed when attitude scores were tested. Differences were significant, but while with some ads they
were in the hypothesized direction, two commercials yielded more positive attitudes when placed in the suspense program -- a result exactly opposite to that predicted by Kennedy. The author confesses to some degree of difficulty in explaining this occurrence, and reaches for such tentative explanations as "commercial format-program fit" or "product-program congruence." He gives no indication of how commercial format may provide a good fit with the program, but justifies the product-program congruence explanation on the grounds that one of the ads was for a snack food which people may be "more inclined to nibble at" when under tension (p. 37).

An explanation consistent with the cognitive response paradigm, but which cannot be verified in this instance because of the lack of appropriate measures, would be that the dominant cognitive response toward the commercials which performed most effectively in the suspense setting was one of counterargumentation. If ongoing program-relevant cognitive responses interfered with the counterargumentation process, one would expect results in the observed direction -- i.e., a more positive attitude due to cognitive interference caused by high program elaboration.

Bryant and Comisky (1978) examined "the effect on recall of commercial content of placing a commercial within differentially cognitively involving portions of a television program." Citing a propensity to place ads at
"involving action peaks," they suggest that such a strategy may not be optimally efficient, despite the obvious rationale that "for a commercial to be even minimally effective, it must be seen and heard" (p. 64).

The theoretical justification for this claim rests on the assumptions that the transfer of information from short-term to long-term memory requires a certain level of rehearsal, and that rehearsal capacity is limited. Thus a lack of rehearsal or, more pertinent to this high program-involvement context, the rehearsal of competing information resulting in "stimulus overload," may preclude the transfer of commercial message content to long-term memory. Specifically, Bryant and Comisky postulate that "if the viewer is rather intensely 'caught up in' the action of the drama presented prior to commercial presentation, it seems less likely that what is essentially a competing message would . . . become the subject of recall-requisite cognitive rehearsal processes" (p. 65) -- i.e., limited cognitive resources would be allocated to the processing of the program, rather than the commercial. Bryant and Comisky thus hypothesize that "recall of a message presented within television programming should be inversely proportional to the involvement potential of the portion of the program presented immediately prior to and subsequent to the recall message" (p. 66).
To assess the relationship between program involvement and commercial message recall, Bryant and Comisky inserted a beer commercial (for a brand not distributed in the area from which the subjects were drawn) in four positions within an action-adventure program. Initially, they pretested a variety of program positions for differential involvement potential. Pretests were of two types: (1) self-report measures of how absorbing, interesting and cognitively involving subjects found the segment; and (2) subjects' performance on a signal detection test during the communication exposure. In the latter task, subjects heard different patterns of pulses — three, four, five or six in rapid succession. They were instructed to push a button each time they heard a five-pulse pattern. Experimenters then recorded the number of correct and incorrect responses, "based on the rationale that the attention-demanding performance of a signal detection task is impaired as a competing task requires attention and absorbs the respondent" (p. 68).

Pretest results indicated that most of the program was characterized by a moderate level of viewer involvement, with a significant increase at the point of climax. Therefore, to provide sufficient variance in involvement, a minimally involving control stimulus (also pretested) was added to the program, making possible a low-involvement condition. A slow-moving wave pattern over a blue
foreground, without sound, comprised the control stimulus. The four commercial positions selected for the final experiment were: (1) between two moderately involving program segments before the climax; (2) between the climax and the resolution; (3) after the resolution; and (4) in the control communication. The first and third positions cited above are thus characterized by a medium level of program involvement, while the commercial immediately following the climax is in a high-involvement position, and that embedded in the control stimulus is in a low-involvement setting. The climax consisted of a freeze frame showing the hero about to suffer a potentially fatal blow, while the resolution depicted his warding off the attack, outwitting the villains and bringing them to justice.

The use of a single program (with the addition of a control stimulus for one condition) inherently results in differential temporal placement of commercials. However, Bryant and Comisky’s approach differs from earlier studies based exclusively on that concept, inasmuch as their interest, and the advertisement positions selected, focused on different levels of viewer involvement in the program rather than on the amount of time which had elapsed as the commercial break began.

Consistent with their hypothesis, Bryant and Comisky found recall to be highest when the commercial followed the minimally involving non-program control stimulus. When the
advertisment was positioned in the segments pretested for varying levels of involvement, recall varied inversely with program involvement. A delayed recall test, conducted with a separate group of subjects, showed a somewhat weaker, but still significant, pattern of results one month after exposure. This result lends itself readily to a cognitive response explanation; i.e., the ongoing generation of cognitive responses relevant to program content in the highly involving condition interfered with the active processing of the commercial message, resulting in lower recall.

Bryant and Comisky’s contribution exceeds those of the studies cited earlier in explanatory power. As noted earlier, the authors pretested program content and identified differentially involving segments, and they sought improved control through the use of a single program for all conditions. In so doing, they established an observable program characteristic (involvement) as a basis for differences in recall and avoided the multiple sources of confounding which plagued earlier studies that used very different program stimuli, such as comedies and mysteries.

But the Bryant and Comisky results leave a number of questions unresolved. The exclusive reliance on recall as a dependent measure severely limits the drawing of inferences about attitudinal or behavioral consequences of commercial exposure under conditions of differential program
involvement. By failing to measure cognitive processes, the research also provided no answer to the vital question of how program involvement affects the level and/or content of viewers' cognitive activity to induce the observed recall results.

Soldow and Principe (1981) hypothesize that "program environments that are higher in involvement will cause commercials embedded in these environments to be less effective than commercials embedded in program environments lower in involvement" (p. 59). Citing the findings of Steiner (1966) and Kennedy (1971), they suggest that increasing program involvement leads viewers to "become less attentive to and receptive to commercials" (p. 60).

Noting that studies in this area commonly equate program involvement with program type, they conclude that the "degree of involvement is program specific rather than a function of program type" (p. 60). In other words, a situation comedy and a suspense program are not inherently low and high in involvement, respectively, from beginning to end. Within-program variation in involvement is at least as important, and often as great, according to Soldow and Principe, as between-program differences.

Curiously, after making this observation, they manipulated program involvement as a function of program type, employing a suspense show ("Baretta") as their high involvement manipulation, and a situation comedy ("Brady
Bunch") for low involvement. Their decision was based on a pretest of fifteen programs, which respondents ranked from most to least suspenseful. It is not surprising that a suspense show was evaluated as more suspenseful than a situation comedy; but level of suspense, while related to and perhaps a component of program involvement, is not the sole (and perhaps not the best) indicator of that construct. The authors do not explain their rationale for the assumption that suspense and involvement are equivalent constructs, but they provide some associative evidence of a relationship between them. A manipulation check asking viewers to indicate how involving they found the program as a whole yielded significantly different results between the two programs. However, Bryant and Comisky's (1978) demonstration of different levels of involvement at different points in a program, along with the other differences inherent in two very different program environments, limit the extent to which one can attribute the results of this experiment to inherent differences in the overall involvement potential of suspense and comedy programs.

Dependent measures included brand recall, message recall, attitude toward the commercial (interest, information and enjoyment), and purchase intention. It is not clear why the authors used attitude toward the commercial rather than product attitude, which would appear
to be the more relevant measure of commercial effectiveness. Furthermore, it is not clear that measures of how interesting, informative and enjoyable advertisements are uniformly reflect attitude toward the commercial, and the authors provide no justification for the use of those items and no indication of their internal consistency.

Results showed significantly less brand-name and sales-message recall for commercials embedded in the suspense program than in the comedy, a finding consistent with the researchers' hypothesis. Soldow and Principe obtained partial support for their hypothesis that viewer attitudes would be more favorable in a low- than in a high-involvement context. One commercial (household cleaner) showed no differences across programs with respect to subjects' attitudes. The other two (food, car) differed significantly, with commercials generating more positive attitudes when shown with "The Brady Bunch" than with "Baretta." Purchase intention was stronger among the viewers of the comedy than among "Baretta" watchers.

The authors suggest that the lack of difference in attitude toward the household cleaner between viewers of the two programs may be due to that commercial's position in the series of ads (first, before the food and automobile commercials). They reason that "even when people are involved in a program, the expectation of commercials allows them to forgive the first interruption, but as the
interruptions continue through subsequent commercials they may become increasingly annoyed as the additional commercials delay their wish to return to the plot" (p. 63). Thus, their explanation is one of annoyance rather than the amount or valence of commercial-relevant cognitive activity. But since they failed to alter the order in which the commercials ran, this explanation remains in the realm of speculation. Furthermore, a finding of an unexpected result relative to subjects' attitude toward the ad does not necessarily imply that attitude toward the product is affected in a consistent manner.

Though the authors conclude that commercials should always be maximally effective in a low program-involvement context, their failure to measure the cognitive processes responsible for the obtained results renders this conclusion speculative and perhaps overly simplistic. Nor do they consider the case of advertisements likely to generate negative cognitive responses -- an issue requiring further research. As noted earlier, the suppression of negative cognitive responses, through high program involvement, could potentially enhance a commercial's persuasive impact.

Krugman (1983) assumed the task of refuting the program involvement effects suggested by Soldow and Principe. As a data base, he employed General Electric's quarterly national surveys, conducted between 1971 and 1980. The two data types available from this source were respondent attitude
toward General Electric (an average score for ten corporate image questions) and exposure to briefly described television programs sponsored by the company. The programs fall within four categories: G.E. Theater, documentaries, Barbara Walters, and variety entertainment. Without providing evidence, the author makes the assumption that commercials in G.E. Theater and documentaries interrupted the program action, whereas the Barbara Walters and variety shows would have broken for commercials at more natural program positions. He further assumes that viewer "interest" (a term he equates with involvement) in the program is greater in the interrupted than in the uninterrupted contexts.

Dividing the total sample of 56 shows into thirds on the basis of commercial attitudinal impact, Krugman found that 44 percent of the "interrupted context" programs were located in the "high third" (highest levels of attitude toward General Electric), compared to only 18 percent of the programs with "natural breaks." He claims that this result is "more than adequate . . . to dispel the notion that interruptive commercials are less effective" (p. 23), since they were in this instance allegedly associated with more positive attitudes toward the advertised firm.

This conclusion appears to place excessive confidence in results which the Krugman admits come from a highly uncontrolled investigation. No attempt is made to: (1)
validate the assumption of "interrupted" versus "natural break" contexts within the four program types; (2) identify non-program influences on attitude toward General Electric; (3) determine whether respondents exposed to the programs were also exposed to the relevant ads; (4) determine viewer levels of program elaboration; (5) control for within-program involvement variance; (6) establish the nature of the dominant cognitive response toward the commercial messages; or (7) control for audience size among the varying program types.

Without such information, some alternative explanations could be offered for the Krugman result. It is possible that: (1) documentaries and the G.E. Theater evoked less elaboration than the interview shows, despite the presumed interruptive nature of commercial breaks in the former; or (2) the dominant cognitive response toward the General Electric commercials was one of counterargumentation, the repression of which rendered the ads more effective in the interruptive context. Given these alternative possibilities, it seems inappropriate to accept Krugman's conclusions as the final word on the effects of program involvement.

Thorson, Reeves, Schleuder, Lang and Rothschild (1984) used a physiological measure of involvement (the EEG alpha measure of cortical arousal) and an analog potentiometer (a hand-held dial which viewers turn to indicate ongoing
reactions to a program) to register liking for the program at two-second intervals. A 27.5-minute video presentation combined segments of violent, sexual and comedic programming, with commercials for products judged to be low in involvement inserted between segments. Commercial and program order were counterbalanced. Dependent variables included commercial recall, recognition, and liking for the program.

The comedic segment was shown to be best liked, followed by sexual and violent. Sexual content yielded highest cortical arousal ("involvement"), with violence second and comedy lowest. The demonstration that the most preferred segment was also the lowest in involvement defuses the notion that advertising must take place in highly involving programs in order to reach viewers, since programs may be popular without being highly involving.

Main effects on liking for the commercial were observed only for subject gender and commercial position, not for program type per se or for the mean level of cortical arousal associated with the three program types. Thorson et al. avoid drawing specific inferences with respect to program-involvement effects, suggesting instead that "involvement may comprise several independent dimensions or that the concept is too abstract to discriminate consistently differences in mental processing" (p. 78). Two elements of the Thorson et al. study -- one a stimulus
feature and the other an analytical concern -- limit the inferences which can be drawn in this regard. First, commercials were inserted at the end of each segment, rather than interrupting them at highly involving points. Second, while a continuous cortical arousal measure was taken, the mean level of arousal for each segment was employed as the involvement measure, rather than the more relevant level of arousal at the specific moment of exposure to the commercial. Thus it is plausible that the level of involvement was not significantly different at the conclusion of the three segments. If that were true, one would not expect to find main effects for program type as measured by Thorson et al. In fact, it would render these findings irrelevant to the issue of how viewer processing of commercial messages is affected by their involvement in the preceding program context.

Despite the drawbacks of the manipulation of program involvement employed by Thorson et al., recall and recognition results suggest that it may have been effective in this instance. Subjects demonstrated best memory for the commercials associated with the program segment which demonstrated the lowest mean level of cortical arousal. This result is consistent with the recall findings of Bryant and Comisky (1977) and Soldow and Principe (1981).

The experiment's failure to yield attitudinal differences, in conditions associated with significantly
different levels of liking for the program, neutralizes the alternative explanation that context effects on attitude are due to classical conditioning -- i.e., liking for the program generalizes to products advertised on the program.

Like Bryant and Comisky (1978), Oberman and Thorson (1985) recognized that the level of program involvement varies over time with a given program. They therefore investigated both global (whole program) and local (momentary) involvement effects. They also manipulated video and audio commercial complexity.

After noting the inconsistency inherent in the various disparate operationalizations of the involvement construct, Oberman and Thorson determined the involvement potential of their experimental programs "by asking pretest subjects to rate for each program segment how involved they were with the message" (p. 3). An advantage of such an approach, they suggest, is that rather than imposing a specified definition on subjects, they are allowed to "decide for themselves what the involvement concept meant and thereby to include a number of different dimensions such as 'suspenseful,' 'interesting,' 'liked,' 'challenging,' and so on." The disadvantage, which they fail to note, is that the user of their results is left with no clear idea of what attribute(s) contributed to the evaluation of their stimuli as involving or uninvolving. It is also likely that different people interpreted involvement in different ways,
with the result that the involvement measure may capture a variety of constructs across the sample.

Oberman and Thorson theorize that "when viewers are involved in program content, they will spend more processing capacity organizing and rehearsing thoughts about the programming during the intervening commercials" (p. 1). Consequently, "consumer messages will be less thoroughly processed and more poorly recalled and recognized." This position is consistent with the results of program-involvement studies cited earlier.

To establish globally high- and low-involvement program stimuli, Oberman and Thorson pretested segments from six shows, having subjects express their level of agreement with the claims that the shows were thought provoking, that the characters elicited sympathy (a dimension of dubious relevance to involvement), that the programming was exciting, and that they did not become involved in the programs. On the basis of these measures, two programs were selected as highly involving and two as low in involvement. Three concerns arise with respect to this involvement manipulation. First is the involvement measurement problem shared by most studies in this area -- exclusive reliance on self-report measures of involvement which may lack reliability. The authors report no attempt to assess the internal consistency of their involvement scale. Secondly, the programs selected for the low involvement conditions --
"Wild America" and "Inside Business" -- are PBS productions. Hence the insertion of commercials into these programs would not be expected by viewers familiar with those programs, and may induce hypothesis guessing, which could lead to an inordinate level of attention. A third problem is one shared by each of the program involvement studies discussed earlier (except Bryant and Comisky 1978) -- involvement is confounded with program type. Finally, there is no measure, and hence no evidence, of the ongoing program-relevant thought which presumably interferes with the processing of commercial information.

The local involvement manipulation is also questionable. Claiming to follow Bryant and Comisky's (1978) procedure, Oberman and Thorson (1985) inserted commercials in a "high-involvement position (pre-resolution) between the 10th and 12th minute, and a low-involvement position between the 5th and 6th minutes (pre-climax)" (p. 8). What they fail to note is that Bryant and Comisky selected those positions through careful pretesting of their specific program stimulus for involvement potential. The assumption that each of the four programs employed in the Oberman and Thorson study necessarily has locally high and low involvement in identical positions is inappropriate without similar testing. A manipulation check revealed that subjects did not perceive the locally high- and low-involvement commercial positions to differ in program
involvement within the globally low-involvement programs (though significant differences were observed for the globally high-involvement programs). This may account for the experiment's failure to generate the hypothesized local involvement effects.

Experimental results showed higher recall and recognition of ads shown in globally low-involvement programs than for highly involving program stimuli, as hypothesized. However, with global involvement confounded with program type, it is impossible to ascertain whether these differences are due to involvement or to other unique program characteristics. Main effects of commercial complexity were inconsistent, as were complexity-involvement interactions. Attitude measures failed to produce significant results.

Oberman and Thorson view their failure to find involvement effects on attitude scores as consistent with prior studies, and suggest that it argues against the assumption "that viewers are more irritated by commercial interruptions during high-involvement programs" (p. 18):

It is possible, instead, that a commercial break in a high-involving program provides a feeling of "relief" -- allowing the viewer to relax and enjoy a break. Or perhaps even more likely, given the lack of differences in attitudes between high- and low-involving programming, American viewers are so accustomed to commercial interruptions that there are no attitudinal shifts at all.

A third possibility, which the authors do not address, is
that the commercial stimuli were neither sufficiently proattitudinal or counterattitudinal to induce sufficient development of cognitive response to result in attitudinal effects even when viewed in isolation. If that is the case, one could not expect the cognitive interference of highly involving programming to have a significant attitudinal effect in either direction.

Limitations of Prior Studies

This examination of prior investigations of the effects of program "involvement," defined and operationalized in a variety of ways, reveals some evidence that "high involvement" in a program has a detrimental effect on the recall or learning of commercial message content. However, even on this fundamental conclusion researchers have not reached total agreement, as evidenced by Krugman's (1983) discrepant claims. And beyond that basic result, there is little consensus about how program involvement affects the processing of televised advertisements. The inconsistency in results obtained from attitudinal measures, and the inability of the research undertaken to date to explain the discrepancies, indicate that one must look beyond main effects of program involvement to find the antecedents of persuasion in a television viewing context. As implied by the model developed in the prior chapter, the direction and extent of those effects may depend upon such variables as
viewers' prior attitude toward the advertised product or issue, and the commercial's ability to reorient their thoughts away from the program and toward the message.

This research attempts to build upon a number of potentially critical considerations which prior studies have failed to address. First, there is no available evidence of the extent to which highly involving program content utilizes viewers' cognitive capacity. It is important to establish how program elaboration affects viewers' ability to process commercial information. If ongoing program-relevant thought extensively engages available resources, limitations in cognitive capacity may render thorough processing of commercial content unlikely without a purposeful and effective attempt to reorient viewer attention.

Second, prior investigations of program involvement effects on recall have not addressed whether the types of commercial elements recalled differ between conditions. Does the increased level of commercial recall commonly observed when program involvement is low reflect better memory for central message elements, or only for peripheral cues?

Third, researchers have neglected to date the investigation of program elaboration effects on cognitive response activity. An unresolved issue is whether program elaboration suppresses commercial-relevant cognitive
responses or creates a heightened level of cognitive arousal which facilitates advertisement-specific thoughts. Likewise, it would be useful to establish what differences in the nature, as well as the amount, of cognitive responses are associated with different levels of program elaboration. Persuasive impact may well depend on whether dominant cognitive responses are positive or negative, or whether they reflect message or own thoughts.

Finally, no previous results indicate how any processing deficits associated with program involvement can be overcome or used to the advertiser's advantage. It is important for managerial purposes to determine whether attention-engaging devices have the ability to reorient viewer attention toward the commercial, and to identify conditions (such as negative prior attitudes) under which program-induced processing deficits may enhance persuasion by suppressing counterargumentation.

Answering these questions requires a more detailed assessment of the fundamental cognitive processes involved in television viewing than has been undertaken to date. No prior research has utilized measures which provide evidence of the amount or nature of commercial-relevant thought emerging under conditions of differential program involvement or elaboration. Without such measures, one clearly cannot resolve the unanswered questions suggested
above. In pursuit of that objective, an overview of relevant theoretical literature is in order.

COGNITIVE PROCESSES

The model proposed in the introductory chapter as the conceptual basis for this study is based on a framework of cognitive processing which has evolved across several streams of research in recent decades. Reviewed here are some of the important theoretical and empirical contributions in the study of cognitive capacity, cognitive response, distraction, and attention arousal. The review focuses on aspects of this literature relevant to program elaboration effects on commercial processing.

Cognitive Capacity Limits and Elaboration

Research in the area of memory and attention suggests that the amount of information which an individual can attend to or process at any one time is limited. Miller's (1956) classic article on the size limitation of working memory suggests an ability to retain about seven pieces of information ("The Magic Number Seven Plus or Minus Two"). Other scholars place the figure somewhat lower, at about three or four (e.g., Simon 1974).

Kahneman (1973) shares the view that capacity limitations restrict the amount of information which can be processed, noting that while parallel processing of diverse
information bits is possible, the need to draw on a common pool of capacity limits the ability to carry out detailed analyses of those units. He also suggests, however, that capacity, though limited, is not fixed at a constant level. Rather, it increases as the demands of the primary processing task increase. But that increase is commonly insufficient to retain performance at a constant level of quality and speed. That is, as a processing task places increasing demands upon available cognitive resources, attentional capacity itself -- i.e., the ability to attend to larger amounts of information -- may increase; but this growth in capacity is seldom proportionate to the increase in cognitive demands. Consequently, the deployment of attention becomes less precise and more uneven under conditions of high arousal. So while individuals may find themselves able to attend to more stimulus information than in less arousing circumstances, they may be less capable of directing that attention with precision to a specified stimulus. The result, Kahneman suggests, is lowered performance when tasks require the allocation of capacity over a wide range of information-processing activities. Such a situation may arise when a television commercial competes with arousing, thought-provoking program content for the viewer's limited processing ability.

Kahneman notes three reasons why an individual may be unable to effectively and efficiently process an information
stimulus. First, there may be insufficient capacity to meet the demands of the stimulus. Second, available capacity may be channeled to other activities. Finally, the impact of the relevant information may be insufficient; i.e., even in the absence of competing processing activities and when capacity is essentially underutilized, some stimuli may fail to motivate recipients to attend to them because of a lack of interest, novelty, sensory stimulation or other attention-engaging features.

Wilkie (1986) discusses the challenge that limited capacity places on the television viewer's information processing system (p. 95):

The TV commercial is sending out a constant stream of visual and sound stimuli, over a 30-second period. Our CIP [consumer information processing] system must maintain a constant interpretation process during each 30-second ad. Processing capacity must be used to decode what the light and sound waves from the TV set are in fact showing and saying. In addition, further STM [short-term memory] capacity must be used for us to figure out how the sights and sounds tie together, and still further capacity must be used to decide what meaning the ad has for us personally.

Burnkrant and Sawyer (1983) add insight into the role of cognitive capacity in learning. They suggest that learning is "a function of the intensity with which we process the information we confront" (p. 43). This "intensity" refers to the amount of cognitive capacity allocated to message processing, and is treated as a function of the "task or goal orientation" of the recipient.
and the structural characteristics of the message itself. In discussing the determinants of processing intensity, Burnkrant and Sawyer develop a construct which they call "need for information," defined as "the importance to the individual of correctly grasping the meaning or content of the message," or "the desire for an increase in understanding" (pp. 50-51). While conceptually similar to "involvement," as it is sometimes defined (Krugman 1965, Howard and Sheth 1969, Antil 1984, Muncy and Hunt 1984, Batra and Ray 1986), the "need for information" does not suffer from the ambiguity to which that construct has given rise, in terms of its definition, antecedents, measurement and consequences. In originally proposing the need-for-information construct, Burnkrant (1976) equated it with a drive for a change in uncertainty, suggesting that this "need for uncertainty change may be viewed as a psychological state of readiness for informational stimuli" (p. 24).

The need-for-information concept is transferrable to the notion of program elaboration. A program segment high in elaboration potential would, in that sense, be one for which the viewer attached a high degree of personal importance to grasping its content in a drive to reduce uncertainty. S/he would therefore allocate a relatively large amount of cognitive capacity for that purpose.
Consequently, the capacity remaining for the processing of a competing message (a commercial) would be limited.

Greenwald and Leavitt (1984) similarly emphasize the allocation of cognitive capacity, and establish a connection between the elaboration and involvement constructs. Using the Craik and Lockhart (1972) levels of processing approach, they associate increases in involvement with "qualitatively distinct forms (levels) of cognitive activity that (1) require increasing amounts of attentional capacity, and (2) produce increasingly durable effects on memory" (p. 584). The four levels of involvement thus defined are: preattention, which "uses little capacity"; focal attention, which "uses modest capacity to focus on message source, and to decipher the message's sensory content into categorical codes (object, name, word)"; comprehension, which "analyzes speech or text by constructing a propositional representation of it"; and elaboration, which "uses still more capacity to enable the integration of message content with the audience member's existing knowledge."

Clearly the effectiveness and efficiency with which a viewer accomplishes this somewhat demanding task depends upon the availability of sufficient cognitive resources and the motivation to apply them to the message (Batra and Ray 1986, MacKenzie 1986). Any cognitively based theory purporting to explain processing differences associated with programming variations must accommodate these constraints.
How does one explain, for example, the finding of several studies cited earlier that increases in program involvement were associated with reduced recall of commercial content? It is possible, as was suggested in the prior chapter, that ongoing program-relevant thought occupies cognitive resources sufficiently to minimize viewers' ability to move beyond preattention, or perhaps focal attention, in the processing of the advertising message. Or perhaps viewers, preoccupied with program action, possess adequate availability of cognitive resources, but lack the motivation to apply them to the processing of an advertising stimulus. A third possibility is that high program involvement or elaboration motivates heightened cognitive activity with respect to all stimuli (program and commercial), but reduces the precision with which attentional shifts are directed toward specific informational components. Further research is needed to establish how program elaboration operates within the framework of capacity limitations to affect commercial processing.

Cognitive Response

Greenwald (1968) challenged "cognitive learning theory," or the prevailing view that "acceptance of a communication is in some part a function of learning or retention of its content" (p. 147). He set forth his
approach, which he dubbed "cognitive response theory," as follows (p. 149):

When a person receives a communication and is faced with the decision of accepting or rejecting the persuasion, he may be expected to attempt to relate the new information to his existing attitudes, knowledge, feelings, etc. In the course of doing this, he likely rehearses substantial cognitive content beyond that of the persuasive message itself. The present hypothesis is, then, that rehearsal and learning of cognitive responses to persuasion may provide a basis for explaining persisting effects of communications in terms of cognitive learning. The learning of cognitive response content may, indeed, be more fundamental to persuasion than is the learning of communication content.

Cacioppo, Harkins and Petty (1981) define a cognitive response as "a unit of information pertaining to an object or issue that is the result of cognitive processing" (p. 37). Included within this definition are "recognitions, associations, elaboration, ideas, and images." Persuasive messages may evoke cognitive responses in a variety of ways, including identification of a stimulus, rehearsal of attributes, and support- or counterargumentation.

Cognitive responses may agree or disagree with the source of the persuasive message which engendered them, or may be irrelevant to the communication. The nature of these cognitive responses will thus affect the recipient's level of agreement with the message, according to Petty, Ostrom and Brock (1981, p. 13):

To the extent that the communication evokes cognitive responses that are supportive, the subject will tend to agree with the source. To
the extent that the communication evokes antagonistic cognitive responses because the self-generated cognitive responses either refute the arguments of the source or support a position other than the one advocated, the subject will disagree.

The cognitive response approach has gained impressive empirical support and has proven useful in explaining persuasion effects due to a diverse set of variables, such as distractors (Petty, Wells and Brock 1976), rhetorical questions (Burnkrant and Howard 1984), levels of repetition (Batra and Ray 1986), and time compression (Moore, Hausknecht and Thamodaran 1986). Greenwald's own experimental findings, and those of his colleagues, led him to the conclusion that cognitive responses are the dominant mediators of persuasion effects. Cognitive response activity plays a central role in the model of television viewing developed earlier. Thus the effect of program elaboration on an advertisement's ultimate persuasive impact is presumed to be moderated by its influence on commercial-relevant cognitive response activity; i.e., varying levels of program elaboration may serve to encourage or suppress positive or negative thoughts with respect to the topic of the ad.

Distraction

The model presented earlier suggests that viewer elaboration of television program content, which continues
as a commercial appears on the screen, serves as a
distraction, preventing the full and efficient processing of
the information contained in the advertisement. Beginning
with Festinger and Maccoby (1964), a lively discussion
emerged in the psychology and marketing literature on the
effects of distracting an individual during exposure to a
persuasive message. That body of literature deals with
experimentally controlled external distractors, whereas a
high-elaboration television viewing situation is assumed to
provide an internal distraction. That is, ongoing program-
relevant thought, rather than an externally imposed visual
or audio stimulus or behavioral task, interferes with the
processing of the commercial message. However, the
cognitive manifestations of distraction, be it internal or
external, would seem to possess a degree of commonality.
Major studies in the distraction literature are therefore
worthy of consideration in providing a conceptual basis for
the model which guides this research.

Festinger and Maccoby (1964) suggest that a person
strongly committed to an opinion, and exposed to a
persuasive message attacking that position, will actively
counterargue. If, however, one could somehow create passive
listeners by interfering with the counterargumentation
process, the persuasive communication should have a greater
impact. Under such circumstances, the listeners still hear
the message content, but "with a good deal of their
attention focused on something irrelevant, they are less able to counterargue while they are listening" (p. 360). A maximally effective influence situation thus would combine sufficient distraction to inhibit counterargumentation, but not enough to interfere with the hearing or viewing of the message.

To test this hypothesis, Festinger and Maccoby selected an issue (attitudes toward college fraternities) toward which their subjects (fraternity members) were likely to demonstrate a strong commitment. They then devised a persuasive message attacking that committed position, and exposed the subjects to the message under two conditions. In one condition, attention was focused on the communication, and in the other subjects were visually distracted by combining the audio message with an irrelevant humorous film clip.

In separate administrations of the experiment at three universities, the results consistently showed that the distracting condition resulted in greater persuasion (less favorable attitude toward fraternities) than the nondistracting condition. A weakness of the study is that, while the researchers suggested the presence or absence of counterarguments as the vehicle which respectively inhibited or led to persuasion, they included no cognitive response measure to assess the level of counterargumentation.
Freedman and Sears (1965) sought to provide additional evidence for the finding of Festinger and Maccoby (1964) that distraction can increase the effectiveness of a persuasive communication. Rather than the visual distraction employed by Festinger and Maccoby, Freedman and Sears manipulated distraction by leading the experimental (distraction) group of subjects to anticipate the task of evaluating the speaker's personality. The expectation was that this focus on a peripheral aspect of the message would distract subjects from the processing of the central message (a talk opposing teenage driving), especially in contrast with subjects in the control (nondistraction) condition. Individuals in the latter group listened to the talk in anticipation of expressing an opinion on the topic of the talk.

This procedure represents a marked departure from the distraction manipulation employed by Festinger and Maccoby (1964). Indeed, one could argue that the focus on the speaker's personality does not represent a true distraction, since the listener is still attending to the message presentation. However, in view of the study's positioning as a test of the distraction hypothesis, and its frequent inclusion in discussions of the distraction literature, it warrants some attention in this review.

The results, while in a direction consistent with the distraction hypothesis, were weak and the differences failed
to achieve significance. Speculating on potential reasons for their failure to show strong support for this hypothesis, the authors suggest as the most obvious possibility that telling subjects to pay attention to the personality of the speaker was too weak a distraction manipulation. Another potential explanation they offer is that distraction may have the desired effect of enhancing influence only under limited conditions (degree of commitment to initial position, strength of the persuasive message, etc.), which were not met in this experiment.

Another plausible explanation is that both distraction and nondistraction conditions invited the ongoing generation of cognitive responses, albeit with a slightly different focus (counterarguments versus source derogations). While the distraction condition in the Festinger and Maccoby (1964) study interfered with processing of message content, that of the Freedman and Sears experiment probably did not. If cognitive response activity is directly related to a message's persuasive impact, the enhancement of persuasion from a counterattitudinal message requires the inhibition of negative cognitive responses. Festinger and Maccoby's success and Freedman and Sears' failure in demonstrating the validity of the distraction hypothesis may, then, be a result of the successful suppression of cognitive response activity in the former experiment, and the failure to do so in the latter.
Rosenblatt (1966) differentiated between moderate and strong distraction, arguing that "while moderate distraction may produce greater persuasion, . . . strong distraction should make it more difficult for the audience to comprehend a comprehensive message" (p. 85). His experiment employed a counterattitudinal message advocating opposition to the use of chest X-rays for the diagnosis of tuberculosis. Distraction was accomplished by exposing subjects simultaneously to the stimulus messages and a series of irrelevant slides. Subjects in the nondistraction condition were exposed to the communication without accompanying slides. Those in the moderate distraction condition viewed slides relevant to dental hygiene as they listened to the message. Two high distraction conditions consisted of slides relevant to dental hygiene or psychology, all of which Rosenblatt deemed more "unusual" than those employed in the moderate distraction condition. But while both distraction conditions were shown to effectively distract the audience, the manipulation check showed that subjects did not find it to be significantly easier to attend to the message in the moderate than in the strong distraction condition.

Attitudinal results showed that all distractions (moderate and strong) resulted in a significantly greater level of persuasion than did the nondistraction condition. The highest level of persuasion occurred, as hypothesized,
when subjects were moderately distracted. Rosenblatt thus lays claim to providing "the first strong demonstration that moderate distraction facilitates persuasion" (p. 86). However, the difference in attitude means between the moderate and strong conditions was significant only when the psychology slides were used for the latter distractor. The failure to generate a consistently significant difference between strong and moderate distraction conditions may be attributable to the weakness of the manipulation employed rather than a flaw in the underlying theory. If, as seems reasonable, the proposed relationship is valid, it is consistent with the later observation of Regan and Cheng (1973) that the beneficial effects of distraction can only be realized if the distraction is of adequate strength to disrupt the dominant cognitive response (counterargumentation), but is not strong enough to preclude message reception.

In another test of the Festinger and Maccoby distraction hypothesis, Osterhouse and Brock (1970) conducted a series of experiments assessing the effect on counterargumentation and message acceptance of requiring subjects to vocally monitor light flashes. Seated before a panel of four lights, which were controlled by the experimenter, they were instructed to call out the number of a light as it flashed. The frequency with which lights appeared on the panel served as the manipulation of
distraction. Thus subjects in the high-distraction condition received an average of 24 light flashes per minute, those in the moderate-distraction condition received an average of 12 per minute, and participants assigned to the no-distraction group listened to the communication without distraction. The researchers' expectation was that the light-monitoring task would impede subvocal counterarguing. Their stimulus was a counterattitudinal message advocating a large tuition increase.

The results consistently showed communication acceptance scores to increase in a linear fashion, with the lowest level of persuasion occurring in the no-distraction condition and the highest when distraction was high. This appears to contradict the Rosenblatt conclusion that moderate levels of distraction outperform more intensely distracting conditions in terms of their impact on persuasion. However, the difference in distraction manipulations render precise comparisons problematic, and it is possible that Osterhouse and Brock's high-distraction manipulation would fall within the range of distractability which Rosenblatt characterizes as moderate.

Osterhouse and Brock also reported that nondistracted subjects recorded significantly more counterarguments than did those in the distraction conditions, supporting the hypothesis that distraction effects on persuasion occur
through the suppression of counterargumentation. Distraction did not have a significant effect on recall.

The authors thus conclude that counterargumentation inhibition serves as the best explanation for the effect of distraction on acceptance. Counterarguing is most likely to occur, they suggest, "in response to a message which advocated action having negative consequences for the recipient or which contradicted a strongly held opinion in an area having important implications for the individual" (p. 355). It is less likely "as a response to a communication which presented new information about non-ego-involving issues." They do not address the impact or merits of distraction in the latter condition.

In addressing the effects of distraction level and message complexity, Regan and Cheng (1973) hypothesized that the two constructs interact to affect a recipient's perception and acceptance of a persuasive communication (p. 139):

Distraction should increase attitude change under conditions where the communication is relatively easy to understand but also relatively unconvincing, and it should decrease attitude change if the communication is difficult to understand but persuasive if understood.

The authors suggest that distraction has a role in both reception of and yielding to a message. Consistent with prior research, they argue that it should be negatively related to reception, since "being distracted makes
attention more difficult, and may also interfere with comprehension" (pp. 139-140). However, after stating the important hypothesis that its effects on yielding can occur in either direction, they appear to retreat from that position and offer instead the rationale, derived from earlier studies which employed counterattitudinal messages, that distraction is positively related to yielding through the inhibition of counterargumentation and source derogation.

In testing their propositions, Regan and Cheng employed messages which were simple (easily understood but relatively unconvincing) or complex (relatively difficult to understand but convincing), and presented with or without distraction (background music played at a volume which enabled the listener to hear the message, but with some difficulty). The counterattitudinal messages argued that brushing teeth after each meal is not an effective method of dental care and that wearing seat belts is ineffective in lowering automobile death and injury rates. Since the simple and complex dental care messages yielded significant results, while the seat belt communications did not, reported results are based exclusively on the former.

Distraction produced no significant main effect on attitude, but the predicted distraction/complexity interaction emerged as significant; i.e., distraction increased persuasion for the simple message and decreased
It for the complex communication. There was also a strong main effect for complexity, with the complex message being far more persuasive than the simple one.

Noting the importance of considering effects on both reception and yielding, the authors summarize their findings as follows (p. 145):

Given a communication which is difficult to understand but highly convincing if understood, the potential beneficial effects of distraction on yielding will be minimal and distraction will affect attitude change primarily via its negative effect on the reception mediator. Given a communication which is very easy to understand but rather unconvincing, the detrimental effects of distraction on reception will be outweighed by its positive effects on yielding.

While these results have some conceptual appeal, they are not without limitations. The complexity construct, as coperationalized in the Regan and Cheng experiment, is confounded with two other variables -- message length and argument quality. The complex message was more than twice as long (119 seconds) as the simple version (48 seconds). Main effects of complexity may therefore be due in part to the increased length of exposure to the complex message. Likewise, argument quality was higher in the complex (convincing message) than in the simple (unconvincing message) condition. It is not clear that the distraction/complexity interaction would have emerged as significant if the arguments in the two complexity conditions had differed only in complexity and not in
quality. Furthermore, by failing to provide evidence of the role of counterarguments and support arguments in the two cases, Regan and Cheng do not fully establish the causes of message reception and yielding.

Petty, Wells and Brock (1976) examined the impact of distraction on the acceptance of propaganda. Expanding upon the counterargumentation-disruption hypothesis espoused earlier by Osterhouse and Brock (1976), they developed a more general model of distraction which attributed its effects to the disruption of the dominant cognitive response. They thus hypothesized that "if the dominant cognitive response to a communication was counterarguing, then distraction would lead to increased persuasion by interfering with the counterarguing process; but, if the dominant cognitive response to a communication was agreeing or favorable cognitive responses rather than counterarguments, distraction would inhibit these favorable thoughts and lead to lowered acceptance" (p. 871).

Their first experiment established a situation in which two theories of distraction made opposing predictions. Effort justification theory "states that with increasing levels of distraction (and thus effort), there is increased acceptance of both messages since for each message, subjects have to justify their effort expenditure" (p. 875). This assumes that individuals feel a need to justify any effort they expend in attending to and processing a discrepant
communication -- a requirement which can be satisfied by adopting the attitude expressed in the message. Any increase in distraction should cause a corresponding increase in the effort required to process the stimulus message; and with more effort expended the perceived need for effort justification would become increasingly critical, resulting in greater persuasion (irrespective of the message's relative difficulty of counterargumentation). In contrast, the counterargument disruption hypothesis "would expect an enhancing effect only for the easy-to-counterargue message, because presumably only for this message are counterarguments generated that can be disrupted by distraction" (p. 876).

Utilizing one "difficult-to-counterargue" message and another which was "easy to counterargue," Petty et al. obtained a significant interaction between the message and distraction factors. The easy-to-counterargue message generated its highest level of persuasion at a high level of distraction, while distraction reduced communication acceptance for the difficult-to-counterargue message. These attitudinal results were accompanied by consistent cognitive response levels; i.e., "the number of counterarguments elicited by the easy-to-counterargue message and the number of favorable thoughts elicited by the difficult-to-counterargue message tended to be inhibited by the distraction manipulation" (p. 880).
A second experiment generated support for "the more general distraction formulation: that distraction works by disrupting the dominant cognitive response to propaganda, and thus could either enhance or reduce persuasion" (p.875). Using similar experimental stimuli, Petty, Wells and Brock demonstrated a significant interaction of the message and distraction factors, such that distraction inhibited counterargumentation for the easy-to-counterargue message and suppressed support arguments for the difficult-to-counterargue message. They thus conclude that "distraction can enhance or reduce yielding to propaganda depending on the nature of the message (whether easy or difficult to counterargue) and the extent to which appropriate responses (favorable thoughts or counterarguments) are evoked" (p. 883).

Citing studies which employ cognitive response measures with distraction tasks (e.g., Osterhouse and Brock 1970; Petty, Wells and Brock 1976), Petty and Brock (1981) conclude that "thought disruption is the most viable mediator of the distraction-persuasion relationship" (p. 79). They suggest that "persons often are motivated to process actively the information contained in persuasive communications, and when this processing is inhibited, the attitudinal results are modified" (p. 79). This occurs as a result of the suppression of the dominant cognitive response. Greenwald and Leavitt (1984) concur with the
thought-disruption explanation of the well-established
distraction phenomenon: "the presence of a mild distractor
may occupy enough attentional capacity to interfere with
cognitive responding, while still permitting comprehension"
(p. 586).

Attempts to replicate the distraction findings in a
marketing communication environment have met with mixed
results. Positioning his research as a test of the
distraction hypothesis in marketing, Gardner (1966) measured
changes in perceived desirability of and attitude toward an
advertised product as a function of different levels of
distraction. In a pretest, subjects indicated the
desirability of five movies. For each subject, the
persuasive message in the final experiment advocated the
movie to which s/he had assigned the second highest score in
the pretest. Distraction was manipulated by the use of a
slot racing car set, in which subjects ran two cars (high
distraction), only one (low), or none (no distraction) while
the message was played. Finding no significant difference
between distraction conditions with respect to subjects'
attitudes (although distraction did significantly reduce
message recall), Gardner concluded that the distraction
hypothesis "must be rejected as having any powerful
influences on responses to a persuasive marketing
communication" (p. 30).
The procedure for message selection (ranking the desirability of a set of movies prior to exposure to an ad for the second choice) appears to provide a weak basis for the expectation of the generation of counterarguments, in view of Osterhouse and Brock’s (1970) contention that non-ego-involving issues are less likely to be associated with counterargumentation. Selection of a movie as most preferred is probably not a conviction which is likely to be held with sufficient strength to result in a subject’s counterarguing a positive message aimed at his or her choice, especially when that message is not specifically attacking the most preferred show. Indeed, such an approach may lead to the generation of support arguments, since the second most preferred movie is still probably favorably evaluated. Furthermore, given the lack of evidence of attitude change occurring in any condition, there is no reason to expect distraction to affect persuasion.

Venkatesan and Haaland (1968) explored the effect of visual and behavioral distractions on the processing of television commercial messages. They included four conditions: control, visual distraction, behavioral distraction, and a combined visual and behavioral distraction. The visual distraction manipulation consisted of showing subjects video material which was related or unrelated to the audio portion of the commercial. Behaviorally distracted subjects were instructed to perform
a simple multiple-choice task during the commercial. After the presentation of the stimulus, measures of product category and brand name recall were taken.

Subjects in the distraction conditions demonstrated significantly lower recall than those in the control group. As expected, recall was lowest among subjects in the combined distraction group. Interpreting this result, Venkatesan and Haaland argue against the Festinger and Maccoby distraction hypothesis, suggesting a simple learning theory approach to the issue of persuasive communication. From their perspective, the impact of television commercials is seen as a learning process, and distraction inhibits learning by interfering with message awareness and recall.

However, given the limitations inherent in using recall as the sole dependent variable -- i.e., with no measure of attitude -- it is impossible to assess what persuasive role, if any, the distractor may have played. Persuasion can have multiple antecedents, of which recall is but one. Indeed, empirical evidence of contrasting recall and attitudinal results are not uncommon (e.g., Kennedy 1971). In addition, some studies have shown distraction to have an impact on cognitive responses and persuasion in the absence of a recall effect (Freedman and Sears 1965; Osterhouse and Brock 1970; Petty, Wells and Brock 1976) -- a result for which Venkatesan and Haaland do not account. It is therefore possible that distraction could have had no impact on
attitude in spite of its inhibiting effect on recall (as in Gardner 1966), or even that it might have had the reverse effect of enhancing persuasion.

Furthermore, Bither (1969) correctly observes that Venkatesan and Haaland "failed to realize the situational limits" of the distraction hypothesis, and in so doing did not provide a valid test of that concept. Specifically, Festinger and Maccoby were dealing with a counterattitudinal message, while Venkatesan and Haaland employed a commercial which was presumably neutral to proattitudinal in tone. Bither notes that the counterattitudinal situation is relevant to the advertising context, especially in the case where a persuasive commercial is directed to an audience loyal to a competing brand.

In a later study, Bither (1972) investigated "the effects of distraction on persuasibility within a range of distraction conditions and across varying levels of commitment to opposing views" (p. 2). Distractions were of three types: audio (a narrator with a heavy Dutch accent), mild visual (a color presentation of umbrellas seen on a rainy day replaced the product-relevant depiction of cars, trademarks and product statistics), and strong visual (college football action in slow motion). Levels of commitment were defined in terms of automobile ownership as follows: owners of the competing car which is criticized in the commercial; owners of other cars produced by the same
manufacturer as the competing car; nonowners expressing a preference for the competing car; nonowners expressing a preference for the competing product; nonowners expressing no preference for the advertised automobile or its competitor; and owners of the advertised car. Subjects were exposed to comparative television commercials for an automobile.

Bither predicted maximum attitude change in the medium distraction, high commitment cells, where "distraction was expected to interfere with counterarguing without entirely blocking message reception" (p. 2). He also hypothesized that the amount of learning of commercial content would be inversely proportional to the amount of distraction.

The attitude change data demonstrated a strong commitment effect, as subjects in conditions of higher commitment to the competing car demonstrated a stronger positive attitudinal shift than did those committed to the advertised automobile. However, the predicted commitment-distraction interaction, though in the hypothesized direction, did not emerge as significant. Recall data produced a strong distraction effect, as hypothesized. The Bither study is thus inconclusive in establishing main effects of distraction on attitude change in an advertisement context and it does not support an interaction of distraction and commitment.
Distraction studies in the psychology literature provide ample evidence in a variety of experimental contexts that distracting individuals in the process of message exposure can affect persuasion by suppressing cognitive response activity. Research in the marketing area has been less successful in the demonstration of distraction effects. However, the latter results appear to be a reflection of the failure to control for or assess the nature of the cognitive responses thus inhibited, rather than an indication that distraction is irrelevant in the context of marketing communications.

Distraction has traditionally been manipulated by external means, typically lacking in external validity, such as the intrusion of irrelevant visual or audio stimuli. That which is perceived to play the distracting role in the present study is of a substantially different nature -- the ongoing, internal cognitive elaboration of program content. But while television program elaboration is not identical in all respects to the distractors employed in prior research, the cognitive mechanism which mediates the effects of the two constructs should be the same. Just as a physical distraction disrupts an individual's message-relevant cognitive activity, so may ongoing viewer elaboration of television program content interfere with the generation of commercial-relevant cognitive responses. Furthermore, the prospect that program elaboration, like distraction, may
disrupt the dominant cognitive response (Petty, Wells and Brock 1976), suggests the possibility that program elaboration may have differential effects on commercial persuasiveness, depending upon whether the message, left unsuppressed, primarily elicits positive or negative thoughts.

Thus among the issues which this research will address will be whether program elaboration acts as a distractor to inhibit viewers' commercial-relevant cognitive response activity, and whether prior attitudes affect the valence of the persuasive impact by determining the dominant cognitive response. Neither issue has yet been addressed in a program elaboration context. It is expected that the effects obtained with external distractors will generalize to the manipulation of program elaboration in the present study.

**Attention Arousal**

A method of compensating for deficits in commercial processing which arise as a result of program elaboration, as suggested in the earlier development of the cognitive response model of television viewing, is the reorientation of viewer cognitions by the use of an attention-engaging device. That is, it is anticipated that when program elaboration is high, the insertion of a dramatic attention-engaging device at the beginning of or immediately prior to a commercial may reorient viewer attention away from the
program and toward the message that follows. (Such a device is perceived in the model as unnecessary when program elaboration is low.) The attention literature provides the basis for that expectation.

Berlyne (1951, 1960, 1970) observed that in situations of response conflict the more arousing stimulus tends to capture the control of behavior. In a television viewing situation, then, an arousing program would be more likely to engage a viewer's attention than would a less arousing commercial. That suggests the need to present viewers with a stimulus at least as arousing as the program content to which they have been attending, if their cognitions are to be interrupted and reoriented toward the forthcoming message.

The use of a stimulus to reorient attention is not a novel idea, although its application in the context of marketing communication is not well researched. Lewis (1970) and Corteen and Wood (1972) found that a sudden and intense change elicits a reorientation of attention, or what they call an "orienting response."

Empirical evidence of an improvement in task performance following exposure to one form of an attention-engaging device -- a loud noise -- is found in the research of Broadbent (1954), Boggs and Simon (1968), Houston (1968), and Hockey (1970). The conclusion emerging from that body of literature is that such a stimulus causes an improvement
in the performance of easy tasks. A caveat exists, however, inasmuch as complex-task performance was shown to deteriorate following exposure to a loud noise. If one assumes, as seems reasonable in most instances, that the processing of television commercials falls more appropriately within an "easy task" than a "complex task" category, the use of such a stimulus appears to hold out some promise in terms of its ability to induce a reorientation of attention that would avoid the negative effects on advertising processing expected when program elaboration occurs.

Kahneman (1973) raises an issue which could potentially interfere with the proposed positive effects of an attention-engaging device. He notes that "novel and surprising stimuli," while attracting attention, also require greater effort to process than do more familiar stimuli. An attention-engaging device may therefore be successful in diverting a viewer's attention away from the program, but still fail to reorient it toward the commercial. Rather, the effort involved in processing the device itself could potentially serve to further distract the viewer from the processing of the advertisement.

Conclusions and Unresolved Issues

From this overview of prior research into cognitive processes, one can draw some general conclusions in support
of the model presented earlier, and identify some unresolved issues which the model addresses and the present research examines. First, it is clear that cognitive capacity limitations place some upper bound -- a value or range of values -- on the amount of information which an individual can process at any single point in time. The literature does not address whether television program elaboration reaches or approaches that limit, thereby rendering commercial processing difficult or impossible. Nor does it suggest whether viewers experience an increase in capacity, as Kahneman’s (1973) notion of an expanding capacity might suggest, in response to the demands of program elaboration. The distraction literature reveals that external distraction tasks moderate persuasion (in either a positive or a negative direction) by suppressing the dominant cognitive response to a persuasive communication. But it fails to address whether ongoing thought processes, such as program elaboration, yield comparable distracting effects. Prior investigations and theoretical work in the area of attention suggest that arousing stimuli have the capability of reorienting attention. Yet they do not clearly establish whether redirected cognitions will, in the context of television viewing, focus on the commercial message or remain fixed on the attention-engaging device itself. It is hoped that the present research will offer increased insight into each of these unresolved issues.
MEASUREMENT OF ELABORATION AND RELATED CONSTRUCTS

An examination of program elaboration effects on commercial processing requires the careful and precise measurement of both the amount and type of cognitive activity in which a television viewer engages. The elaboration construct is one for which scholars have not to date achieved consensus in terms of measurement procedures. Prior research in cognitive processing areas has employed a variety of approaches: self-report measures of involvement, attention and related constructs; thought listing; physiological measures; and secondary task performance. Each is described here, with examples of its application and a brief discussion of its strengths and weaknesses.

Self-Report Measures

Self-report measures either require respondents to provide a direct subjective evaluation of their level of cognitive activity directed toward a relevant stimulus, or to respond to some surrogate measure(s) which the researcher develops as an indicator of the relevant construct. Typically such measures are in semantic differential, Likert or some other standard interval scaling format. For example, measures of television program involvement include single-item self-report measures asking viewers to evaluate how involved they are with the program (Soldow and Principe
1981), and how suspenseful it is (Kennedy 1971). Bryant and Comisky (1978) included a three-item self-report measure ("How absorbing/interesting/cognitively involving was the program segment").

Zaichkowsky (1985) developed a twenty-item Personal Involvement Inventory (PII) scale to capture the concept of product involvement, the positive anchors of which are as follows: important, of concern to me, relevant, means a lot to me, useful, valuable, fundamental, beneficial, matters to me, interested, significant, vital, interesting, exciting, appealing, fascinating, essential, desirable, wanted, needed. In multiple tests, the scale demonstrated reliability (through both internal consistency and longitudinal stability) and validity (face, criterion and predictive). The scale was shown to be effective in varying situational contexts. While its intended usage is for the measurement of product rather than program involvement, some of the dimensions it measures appear suited to a program context.

The Zaichkowsky work demonstrates that carefully constructed and validated self-report measures can attain to a high level of reliability and validity. Furthermore, some empirical tests undertaken on data derived exclusively from self-report measures provide evidence of their adequacy in revealing statistically significant relationships in support of researchers' hypotheses (e.g., Soldow and Principe 1981).
However, using a structured item or set of items to measure cognitive activity is not without limitations. First, such information cannot be collected at the instant the relevant processing occurs. If the researcher wishes to assess the amount of program-relevant thought in which a viewer is engaged during a given segment, the program action is typically stopped (or even if it is not, the subject's attention is momentarily diverted away from it) for the purpose of responding to the measure. The question then arises as to how accurately the viewer is able to reconstruct the cognitive framework relevant to the segment addressed by the question. Second, the opportunity for using such obtrusive measures is limited. While a researcher may be able to collect data at three or four points in a program, one cannot rely on a self-report approach to provide a continuous measure of cognitive activity over the course of an entire program. Third, a structured format places some limitation on the information provided. Structured items typically measure an overall level of elaboration, involvement or some associated construct, but fail to provide any information on the focus or valence of the cognitive activity.

Thought-Listing Tasks

Greenwald's (1968) assertion that cognitive response content is more relevant to persuasion than communication
content gave rise to the use of thought listing as a means of assessing cognitive activity. In a measure of this type, subjects list their thoughts or ideas relevant to the message topic. Researchers then classify those responses into categories which are deemed relevant to the hypotheses under investigation, such as total number of thoughts, whether those thoughts are directed toward the message itself or the source, and whether they reflect simple rehearsal of communication content or more personal associations. By looking beyond mere message content recall or rehearsal to recipient-generated thoughts, the researcher seeks to identify the internal cognitive process by which a persuasive message influences attitude formations or change. Persuasion should then be a function of both the amount and the type or favorability of message-relevant thought.

The thought-listing task possesses some limitations in common with the structured self-report approach discussed earlier. Collection of cognitive response data, like other self-report measures, takes place after (rather than during) exposure to the stimulus for which responses are desired. The obtrusive nature of the task again precludes its usage for the same subjects across multiple points in any given communication stimulus. Furthermore, the unstructured nature of the measure introduces an element of subjectivity into its coding and interpretation. The latter problem is partially resolvable through the use of multiple, well-
trained judges and careful reliability assessment. A distinct advantage of thought-listing data over responses to structured self-report items is the wealth of information they convey relative to mediational cognitive processes such as the generation of favorable and unfavorable thoughts.

Physiological Measures

An alternative to the types of self-assessment of cognitive activity discussed to this point is the use of physiological measures of response patterns, such as brain waves, pupil dilation, galvanic skin response (GSR), pulse or respiration. The use of physiological instrumentation in the cognitive arena arose in an attempt to provide more continuous -- and in some instances more reliable, valid and sensitive -- data than can be obtained through self-report measures. The advantage of continuity is obvious, in that an instrument, once attached to an individual, provides continuous monitoring of the relevant physiological function until it is turned off or removed. Since these measures do not require subjects to translate cognitive impulses into grammatical or response-scale formats, they may enhance reliability on some occasions. In situations where subjects may be reluctant to divulge information with complete honesty, or when researchers seek information for which subjects may lack a full conscious awareness, physiological measures may yield more valid data than do self-report or
thought-listing formats. And physiological instruments are capable of making more minute distinctions in levels of responses than can be obtained in pencil-and-paper measures, thereby enhancing sensitivity.

Krugman (1965, 1971) advocated the use of physiological measures of involvement. In the 1965 study, Krugman showed television viewers two commercials and compared results generated from a pupil dilation measure with responses to self-report items addressing viewers' desire to see the test commercial again and their assessment of how convincing they were. Finding an order-of-presentation bias (commercials benefitted from later exposure) in the verbal responses which was not present in the pupil dilation data, Krugman drew some conclusions in favor of the latter measurement approach. "In measuring liking for, or interest in, television commercials the use of an immediate physical response such as pupil size involves less bias than a later verbal response," according to Krugman (p. 325). Alternatively, it is plausible that a self-report approach would yield results of comparable quality to the physiological measure if one were to collect such data immediately upon cessation of exposure to each message. Furthermore, it is perhaps inappropriate to expect an isomorphic relationship between the self-report and physiological measures employed in the Krugman study, since they clearly address different stages of the
persuasion process; i.e., the pupil dilation measure captures initial attention to the message, whereas the verbal items address ultimate evaluative response.

Noting the advantage of a brain wave measure in covering "the full range of human response activity from peak arousal to deepest sleep," Krugman (1971) used electroencephalogram (EEG) data to assess a viewer's responses to print ads and television commercials. While the study's theoretical implications are difficult to ascertain and its generalizability is low (sample of one), it is of interest as an illustration of the use of the EEG to assess responses to advertising, and in its documentation of changes in basic wave patterns over the duration of commercial messages.

Reeves and Thorson (1986) describe the relevance of EEG data to cognitive information processing. They note that enhanced information processing -- and therefore better memory -- show up as reduced power in the alpha frequency of the EEG, with lower alpha levels indicating greater mental effort. In studying television viewing, alpha is typically indexed over one-half second epochs. As noted earlier, the alpha level of cortical arousal served as a measure of program involvement in the work of Thorson, Reeves, Schleuder, Lang and Rothschild (1984). Rothschild, Thorson, Reeves, Hirsch and Goldstein (1986) report
significant correlations between EEG activity and several measures of commercial learning and affect.

Kohan (1968) compared two alternative measures of interest in a commercial: self-report and galvanic skin response (GSR). The physiological measure provided a continuous assessment of the commercial viewer's level of arousal. The self-report measure consisted of an evaluation of commercial content on a five-point interest scale, collected at ten-second intervals with respect to the preceding ten seconds. The GSR results were transformed into a comparable scale and the two results were correlated. In each instance the correlations failed to achieve significance at the .05 level. Since the GSR result showed interest peaks at points predicted by an earlier "elemental analysis" of the experimental commercial, Kohan concluded that "physiological responses show less bias than verbal responses," with the caveat that his results may "be due to shortcomings in the method by which the verbal responses were taken" (p. 48).

Kohan's self-report procedure and analytical methodology potentially reduced the level of correspondence which might naturally exist between these alternate measures of commercial interest. The GSR measure was taken on the first exposure to the commercial, while the self-report questions were administered during a second viewing. It seems likely that interest would be uniformly low on a
second viewing immediately following the initial one, and that this potential reduction in the level of variance in viewer interest would militate against finding a significant correlation between the outcomes of the two measures. Furthermore, Kohan's interpretation of self-report data as reflecting viewer interest in the commercial over the ten-second interval preceding the response may not be valid; i.e., subjects' responses may more accurately be interpreted as an indication of their true score at the instant the action was stopped and the question asked, rather than for the entire ten-second interval. If that is true, one would not expect to observe a high correlation between self-report and GSR scores as indexed in this study.

Self-report measures of cognitive processing variables are probably not as bad as Krugman (1965) and Kohan (1968) suggest, given the flaws in their studies. But their results should lead researchers to avoid exclusive reliance on verbal indicators in situations requiring continuous or highly sensitive monitoring of cognitive activity. Potential drawbacks of physiological data include the artificial environments in which they are typically gathered, which raises some questions as to the generalizability of inferences drawn therefrom, and the logistical considerations of researchers' access to the necessary equipment and skills.
Secondary Task Performance

An alternative approach to the measurement of cognitive processing levels, and one which enjoys many of the same advantages as the physiological measures discussed above, is the secondary task technique. This procedure involves recording the time it takes subjects to push a button in response to an audio or video stimulus. A wide variety of cognitive tasks have come under scrutiny through the use of this secondary task technique (reviewed in Kahneman 1973; Kerr 1973; Norman and Bobrow 1975, 1976; Posner 1978; Britton 1980; Reeves and Thorson 1986). In each instance, longer response times on a secondary task have been interpreted as indicating the increased use of cognitive capacity for the primary task. To use the present study as an example, the time it takes to respond to the secondary task becomes a measure of the cognitive elaboration directed at the television program.

The most extensive use of the secondary task technique to date has been in the field of educational psychology. Britton and his colleagues (Britton, Westbrook and Holdredge 1978; Britton, Holdredge, Curry and Westbrook 1979; Britton 1980; Britton, Ziegler and Westbrook 1980; Britton, Glynn, Meyer and Penland 1983) used the procedure in studies of the use of cognitive capacity in reading. They consistently found that conditions making extensive utilization of
cognitive capacity (e.g., difficult syntax, more meaning, use of prior knowledge) resulted in slower responses. Likewise, Tyler, Hertel, McCallum and Ellis (1979) found a direct relationship between secondary task response time and primary task information recall.

Burnkrant and Sawyer (1983) advocated the use of the secondary task technique to measure information processing intensity in the study of marketing communications. More recently, Biehal and Chakravarti (1986) called for the use of response time measures of cognitive processing in consumer research.

To date few researchers have employed this procedure in a television viewing context. Two exceptions are Thorson, Reeves and Schleuder (1986) and Moore, Hausknecht and Thamodaran (1986). Examining message complexity and attention to television, Thorson et al. (1986) found that the simultaneous processing of video and audio stimuli requires the utilization of more capacity than does the processing of the audio or video component in isolation. In a test to assess whether the unnatural imposition of a secondary task jeopardized the primary viewing assignment, they compared experimental and control subjects' performance on recognition measures. Finding no significant difference, they conclude that usage of the secondary task technique does not unduly disrupt the normal processing of televised stimuli.
Moore et al. (1986) used the secondary task procedure to assess the impact of time compression of advertisements on viewers processing. By way of further validation of the procedure, they asked half of their subjects to attend to the advertisements and half to concentrate on the response time task. If response times measured in this way accurately reflect the allocation of resources to the video stimulus, those whose attention was directed to the button-pushing procedure should respond more quickly than those whose primary task was the processing of the commercials. A significant main effect emerged ($p < .01$) in the appropriate direction, lending further credence to the secondary task response time methodology as an accurate means of assessing cognitive activity levels.

Response times, while not providing as perfectly continuous a measure as the physiological procedures addressed earlier, can readily provide as many as five or six indicators of a television viewer's elaboration level in a thirty-second interval. This would seem to be adequate for all but the most detailed analyses of second-to-second responses to stimuli. They also possess essentially the same reliability and sensitivity properties as the physiological methods. The Thorson et al. (1986) result suggests that the lack of mundane realism introduced by the imposition of a secondary task does not seriously jeopardize the generalizability of the results. Like physiological
data, response times provide information only about the level of cognitive activity, not about its specific content.

**Summary of Measurement Options**

Given the relative strengths and weaknesses of the measurement options that have been used or advocated to date in the study of cognitive processes, it is clear that no one approach is universally applicable. One must evaluate the relevant hypothetical constructs and the level of measurement continuity, reliability and sensitivity required in making such a determination. Structured self-report measures are easily administered, analyzed and interpreted, but they do not allow for continuous measurement and they are limited in the amount of information they can convey about mediational processes. Cognitive response data are rich in process information, but are not conducive to continuous assessment, and may not provide the most reliable indication of the overall level of cognitive activity. Physiological measures allow a continuous and highly sensitive assessment of overall cognitive arousal, but they give no indication of thought content and their usage potentially weakens an experiment's external validity. The secondary task technique has essentially the same characteristics, but has the additional advantages of greater ease of administration and some evidence that its
obtrusive nature does not seriously threaten the generalizability of the results it yields.

No single approach can thoroughly address the variety of informational needs and measurement criteria which commonly arise in assessing cognitive processes. It therefore becomes incumbent upon the researcher to identify whether s/he requires information on the level and/or content of cognitive activity, and the degree of continuity, reliability and sensitivity required. The present research employs a combination of self-report, cognitive response and secondary task response time measures.

SUMMARY: LITERATURE REVIEW REVIEWED

This chapter has attempted to critically evaluate prior research which relates to the effect of program elaboration on the processing of television commercials. Some of those efforts directly targeted program context effects. Others offered insight into the nature of cognitive processes which are believed to account for such effects, and the methodological issue of measuring those processes. From this overview, one can draw some conclusions as to the limits of our knowledge in this area, some unresolved issues calling for investigation, and some appropriate methods for pursuing such a task.

Empirical evidence in the area of program involvement suggests that to be an important factor in the processing of
televised advertisements. But discrepant results between and within studies indicate a need for a more thorough, detailed and theory-driven approach to the issue. The present research builds upon this foundation by addressing unresolved questions of the extent to which television viewing uses up available cognitive capacity, the conflict as to whether program elaboration facilitates or hinders persuasion (and the mediating cognitive processes by which it may do either or both), and how marketers may compensate for any resulting processing deficits.

The theoretical bases reviewed support the underlying tenets of the model developed in the introductory chapter: (1) cognitive capacity is limited; (2) cognitive responses mediate persuasion; (3) distraction's inhibiting effect on message processing occurs by suppressing the dominant cognitive response, and may thereby enhance or hinder persuasion; and (4) attention-engaging devices are capable of reorienting attention. It remains for this research to establish whether program elaboration interferes with commercial processing, yielding results comparable to the well-documented distraction effect in the absence of an external distractor, and whether an attention-engaging device inserted at the beginning of a commercial will reorient viewer attention toward the advertisement or serve as a further distractor.
Chapter 3 builds upon the theoretical basis established in this review to develop empirically testable propositions which address many of the unresolved issues identified herein.
CHAPTER III
RESEARCH HYPOTHESES

In view of the diverse and sometimes conflicting theories and research results discussed in the preceding chapter, it is evident that a need exists to establish and explain the effects of viewer elaboration of television content on the processing of commercial messages. The satisfaction of that general need, and more specifically the attainment of the objectives cited in the introductory chapter, requires the manipulation or measurement of three constructs. First, with respect to viewer elaboration of program content, a preliminary assessment is required in order to establish whether the anticipated variance exists in an actual network programming context. Program elaboration must then be experimentally manipulated at high and low levels if one is to isolate information processing effects attributable to the construct. A second variable requiring manipulation, in an attempt to ascertain whether it moderates program elaboration effects, is the presence or absence of an attention-engaging device. Finally, a measure of viewers’ attitudes toward the advertised product or issue, prior to exposure to the test commercials, is essential in order to classify subjects in terms of whether
the ads are proattitudinal (in agreement with prior attitudes), or counterattitudinal (opposed to prior attitudes), since cognitive response theory would postulate different persuasion effects on that basis, as discussed in the prior chapter.

Accordingly, a series of experiments is devised. In the early stages, the amount of program elaboration is assessed through secondary task response time measures. Subsequently the manipulations described above are employed in an attempt to assess the impact of program elaboration, attention-engaging devices and prior attitude on commercial recall, cognitive response activity, attitude and behavioral intention. (Research design and procedures are described in detail in the following chapter.) This chapter presents some empirically testable hypotheses specific to those variables, which are based on the cognitive response model of television viewing set forth earlier and the literature reviewed in the preceding chapter.

Three broad categories of hypotheses are considered here. The first relates to the research objective of establishing whether commercials actually appear in program positions characterized by intense or varying levels of cognitive activity. Second, a pair of hypotheses deals with the specific effects of the experimental factors on the level of commercial processing as reflected by cognitive
response activity and recall. Finally, persuasion effects are considered (i.e., attitude and intention).

ELABORATION IN NETWORK PROGRAMMING

Hypothesis 1: Points within a television program may be located that engage the audience in significantly different amounts of elaboration.

Hypothesis 2: Ads, as they are currently placed in television programs, occur at points that differ significantly in terms of program elaboration.

A principal premise of the model which guides this research is that the level of program-relevant thought in which a viewer is engaged when a commercial appears on the screen serves to mediate the processing of and response to that message. It therefore becomes a matter of importance to programmers, advertisers, and marketers generally to ascertain whether the assumption of fluctuating levels of program elaboration is valid in the television environment which confronts viewers. Television viewing is a physically passive. Some have suggested (e.g., Howard 1977) that it is also cognitively passive, in that viewer involvement in or elaboration of televised stimuli provides only minimal cognitive arousal. If that is true, the demonstration of commercial processing effects attributable to experimentally induced high levels of program elaboration would have little practical value, since real-world advertisements would not be positioned in such a context. If, however, marked differences in viewer elaboration occur, either within or
between programs, it becomes important for marketers to understand the impact of such a phenomenon.

As suggested in the introductory chapter, ample anecdotal evidence exists to suggest that commercials appear in positions which induce varying, and sometimes intense, levels of program-relevant thought. However, that assumption has not been empirically validated to date. As noted earlier, prior studies have attempted to induce relatively high and low levels of program involvement in laboratory settings, primarily through the use of different programs. Yet none have provided empirical evidence of involvement or elaboration variance across actual commercial positions in network programming. The initial hypotheses therefore address the external validity of the program elaboration phenomenon. If commercials are found to be in positions varying in terms of elaboration, placement decisions may unknowingly penalize some commercials and help others.

LEVEL OF COMMERCIAL PROCESSING

The expected effects of the experimental factors -- program elaboration, attention-engaging devices, and prior attitude -- on commercial-relevant cognitive responses and recall now warrant consideration. The following hypotheses thus reflect a shift in the dependent variables, with data
Hypothesis 3: In the absence of an attention-engaging device, high-elaboration programming will result in the generation of fewer commercial-relevant cognitive responses than will segments low in elaboration; but in the presence of an attentional device, high- and low-elaboration program segments will generate the same level of commercial-relevant cognitive responses.

Hypothesis 4: When an attentional device is absent, commercial content will be better recalled in low- than in high-elaboration segments; but in the presence of an attention-engaging device, recall will be comparable across program conditions.

The prediction of an inverse relationship between program elaboration and recall is not a new idea, and is essentially consistent with much of the program-involvement literature cited in the preceding chapter. Cognitive response theory suggests a justification for such an expectation. If program elaboration is high -- i.e., viewers are cognitively rehearsing program action, arguing with central characters or themes, anticipating a forthcoming resolution, or otherwise elaborating on program content -- few cognitive resources may remain for simultaneously processing a commercial message.

Since cognitive response activity is a dominant mediator of learning, as was noted in the earlier discussion of that area of study, some amount of commercial rehearsal or other forms of elaboration -- any of which require the availability of cognitive resources -- is necessary for the transfer of an advertisement's content from short-term to
long-term memory. Without the occurrence of such commercial-relevant cognitive activity, transfer from short-term to long-term memory cannot occur, and hence message information could not be retrieved from memory stores at a later time. Therefore, experimental evidence of reduced commercial processing attributable to high levels of program elaboration should emerge in the form of low levels of cognitive response production and recall relative to the levels which emerge in less thought-provoking program positions.

However, the fact that most of an individual's cognitive capacity is allocated to a particular processing activity, at a given point in time, does not preclude the possibility that a novel stimulus may intrude itself into the attentional domain with sufficient force to induce a rapid reorientation of cognitive resources. This concept is supported by the attention literature cited in the prior chapter. Relative to the program-elaboration issue, it suggests that an attention-engaging device inserted at the beginning of a commercial may serve to break a viewer's concentration on the program action. As a consequence, it is proposed that cognitive resources may be reallocated to the processing of the forthcoming commercial message. Thus, even if program elaboration leaves virtually no uncommitted reserves in cognitive capacity at the time the program action stops, an attention-engaging device may serve to
redirect the resources in use by inducing a reallocation of
cognitive resources in favor of the commercial message. If
that occurs, the insertion of an attention-engaging device
would overcome the commercial-processing deficit which would
otherwise accompany high program elaboration, and viewer
processing of the advertising message should proceed at
roughly the same level of efficiency which occurs in less
demanding program environments. In terms of experimental
measures of processing levels, then, the effect of program
elaboration on commercial-relevant cognitive responses and
recall should be moderated by the presence or absence of an
attention-engaging device as suggested by hypotheses 3 and
4.

PERSUASION EFFECTS

Hypothesis 5: Viewers with a prior positive attitude will
report relatively higher attitude scores when program
elaboration is low or when elaboration is high and an
attention-engaging device is present, and relatively lower
scores when program elaboration is high and no attentional
device is employed.

Hypothesis 6: Viewers with prior negative attitudes will
demonstrate most favorable attitudes when program
elaboration is high and no attention-engaging device is
used, with less positive attitudes associated with all other
conditions.

Hypothesis 7: Viewers with a prior positive attitude will
report relatively higher behavioral intention scores when
program elaboration is low or when elaboration is high and
an attention-engaging device is present, and relatively
lower scores when program elaboration is high and no
attentional device is employed.
Hypothesis 8: Viewers whose prior attitude is negative will demonstrate higher levels of behavioral intention when program elaboration is high and no attention-engaging device is used, with lower behavioral intention scores associated with all other conditions.

Neither the overall level of stimulus-relevant cognitive activity nor the amount of information recalled is sufficient to account for the ultimate impact of a commercial message on consumer attitudes and behavior. In assessing an advertisement's persuasive impact, it is not only the amount of thought that is important, but also the nature and content of cognitive responses. Here the knowledge gleaned from the body of research addressing distraction effects becomes relevant. Since distraction disrupts the dominant cognitive response to persuasive messages, it can either enhance or reduce persuasion. To the extent that a persuasive message elicits primarily positive cognitive responses (thoughts in favor of the message's central appeal), allowing elaboration of that nature to proceed without distraction should enhance persuasion, while disrupting it should reduce the persuasive impact. In contrast, a message which induces counterargumentation, source derogations or other forms of negative cognitive responses, stands to benefit from thought disruption if the intent is to persuade.

As with physical distraction tasks, the cognitive effort expended in elaborating upon program content may be expected to minimize the viewer's ability to process the
commercial message. A low-elaboration program environment, by contrast, should suffer from no such limitations.

Prior attitude toward an advertised product or issue is likely to be a major determinant of whether viewers will agree or disagree with the message conveyed by a commercial, and hence of the valence of the cognitive response activity it induces. For example, a viewer who considers prohibiting one's friends from driving after they have been drinking to be a good, wise and beneficial action, would probably look favorably upon an advertisement which advocated that behavior, generating thoughts largely in agreement with the message. The opposite is likely to be true of those with a prior negative attitude toward such a behavior, resulting in the generation of more negative thoughts (discrediting the message or opposing its central message).

If the impact of program elaboration is to disrupt the dominant cognitive response, high and low program elaboration levels should yield attitudinal results consistent with those obtained in the distraction literature. Thus, to benefit from the maximization of persuasion, one would wish that commercials would occur in program positions which would allow those with prior positive attitudes (and hence positive cognitive responses) to process the commercial unhindered by ongoing thinking about the program -- i.e., in a low-elaboration position. Alternatively, those approaching the ad with a negative
prior attitude, which would result in the generation of negative responses if left undisturbed, should demonstrate optimal attitudinal and behavioral responses in a setting which suppressed those negative responses -- i.e., in a high program-elaboration position.

Again, the introduction of an attention-engaging device has the potential to modify the proposed relationship between prior attitude and program elaboration. If, as proposed earlier, the effect of such a device is to reorient viewer attention away from the program action and toward the advertising stimulus depicted on the screen, its presence should compensate for the commercial processing deficit associated with high levels of program elaboration. But since the free and undistracted processing of the commercial message is to be desired only when the dominant cognitive response is positive, in a high program-elaboration setting the impact of an attention-engaging device is projected to be functional (i.e., to enhance persuasion) only among viewers with a prior positive attitude toward the product or issue advocated by the commercial. When viewers approach the advertisement with a prior negative attitude, such a device should be essentially dysfunctional, since facilitating the unsuppressed generation of negative cognitive responses would presumably inhibit persuasion.

On the basis of the foregoing rationale, hypotheses 5 and 6 reflect a three-way interaction of program elaboration
(high and low), attention-engaging device (present and absent) and prior attitude (positive and negative) on the attitudes of viewers toward the product/behavior advocated by the commercial. Since attitude is typically viewed as a dominant mediator of behavioral intention, results anticipated for this variable are consistent with those predicted for attitude scores.

Tests of the hypotheses outlined in this chapter will provide information critical to the determination of the research issues implied in the objectives of this research. Empirical support for those hypotheses would establish an important role for viewer elaboration of television programming as a mediator of advertising effectiveness, identify some variables which determine the direction of those effects, demonstrate the mechanism which accounts for them, and suggest a means of overcoming detrimental effects. The following chapter develops a research design and methodology for the testing of these hypotheses.
CHAPTER IV

STIMULUS DEVELOPMENT, RESEARCH DESIGN AND PROCEDURE

A valid test of the hypotheses outlined in the prior chapter, and an effort to avoid the contradictory findings and alternative explanations which plagued earlier studies of context effects, require a rigorous methodological approach. Among the requirements are the careful development and pretesting of experimental measures and stimuli and the manipulations of variables omitted from prior experiments in this area. This chapter discusses the stimulus development, design, measures and procedure of the present research.

STIMULUS DEVELOPMENT

Among the stimuli required for the experimental investigation of program elaboration effects are television programs, commercials and attention-engaging devices, each possessing some specific characteristics. While program selection flows out of the experiments described hereafter, some pretesting is in order for the identification of appropriate commercials and attention-engaging devices.
Commercial Selection

A number of important criteria exist for the selection of commercials to be used in this research. First, the products or issues advertised should possess some potential relevance for the future behavior of the experimental subjects; otherwise, processing may be weak across all experimental conditions because of a lack of motivation to process the information contained in the ads. Second, they should be characterized by some variance in subjects' prior attitudes, thereby allowing the employment of that variable as a blocking factor for the testing of the hypotheses which predict different levels of persuasion on the basis of such preexisting attitudinal differences. Third, the ads should be professionally produced, demonstrating high quality in their executional elements, in an effort to ensure that inferior quality does not result in minimal processing across all conditions, and to enhance external validity. As a fourth consideration, the ads should be conducive to the insertion of an introductory attention-engaging device, as required by hypotheses 5 to 8. Fifth, given the desire to demonstrate the generalizability of program elaboration effects across different types of commercials, it is appropriate to replicate experimental results across two messages with substantially different marketing objectives (e.g., one ad advocating a position on a social issue or socially responsible behavior, and a second in the more
conventional product purchase domain). And finally, to avoid any effects attributable to viewer familiarity with the commercials, they should not have been recently aired in the viewing area from which subjects are drawn.

Description of Commercials

Two commercials were identified which, in the researcher’s judgment, bore promise of satisfying the above criteria. One, a message sponsored by the U.S. Department of Transportation and the Licensed Beverage Information Council, urges viewers not to allow their friends who drink to drive under the influence of alcohol. The ad was part of a series of related commercials distributed through the National Association of Broadcasters (NAB) for a media blitz about a year earlier. It lends itself to the inclusion of a message-relevant attention-engaging device -- another in the NAB’s series of drinking and driving ads which briefly depicts the stark visual image of a living human hand shaking a skeletal hand, against the sound of screeching brakes and an automobile crash, with the following words flashed on the screen: "Drinking and driving can kill a friendship."

The other ad promoted Mobil 1, a premium synthetic motor oil noted for its high performance under extreme weather conditions. Since Mobil 1 had not yet been introduced in central Ohio, there was minimal risk that
subjects (students at The Ohio State University) would be familiar with the ad or have been exposed to it recently.

Besides addressing relatively diverse marketing objectives, both are high quality ads, professionally developed for regional or national use. Both topics have relevance to the population from which subjects were to be drawn, since most students drive motor vehicles and have friends or acquaintances who consume alcoholic beverages. There was also an expectation that initial attitudes would vary adequately relative to both topics, with some subjects adopting a neutral stance and others demonstrating stronger positive or negative inclinations on the basis of prior experience or knowledge in the relevant areas. Figure 1 contains the complete audio text of the two advertisements, along with a brief description of visual content.

Commercial Pretest

As suggested earlier, some variance in viewer attitudes toward the advertised products or issues is critical to the valid testing of hypotheses projecting a mediating effect of prior attitude on persuasion. Therefore, the ads described above were submitted to a pretest to ascertain existing attitudes among the student population from which the experimental sample was to be drawn.

Method. A questionnaire was administered to 330 undergraduate marketing students at The Ohio State
Drinking and Driving Commercial

(Two friends leave party, walking toward car.)
"Hey, terrific party!"
"Yeah, I really enjoyed it."
"Nobody went thirsty."
(They get into car.)
"You OK? I think I ought to drive."
"Naw, I'm fine. Where do you want to go?"
"I really think you ought to go home."
"Aw, the night is young. Let's go."
(Friend takes keys.)
"No way. I'm driving you home."
"You're some friend."
(Narrator's voice comes on.)
"The fact is, friends don't let friends drive drunk. A public service message from the Licensed Beverage Information Council in cooperation with the U.S. Department of Transportation."

Mobil 1 Commercial

(Setting is white with snow and ice. Narrator speaks.)
"At 35 degrees below zero, this is what you can do with a banana."
(Gloved hand uses banana to hammer a nail into a piece of wood.)
"This is what happens to a freshly cut rose."
(Gloved hand squeezes it; it shatters like glass.)
"And this is premium motor oil."
(Oil oozes slowly out of open can.)
"At 35 degrees below zero, this is what you can do with Mobil 1 motor oil."
(Mobil 1 flows freely out of can; image changes to a car in center of screen, driving directly toward the camera.)
"Mobil 1. The oil that saves you gas helps get you going -- even at 35 below."

Figure 2: Commercial Scripts
University without exposing them to the ads (the instrument is contained in Appendix A). Positioned as a public opinion survey, it solicited student attitudes toward the following "issues facing Ohioans": (1) divestiture of state investments from companies with operations in South Africa; (2) reducing cholesterol intake; (3) confronting friends about their driving after they have had two or three drinks; (4) family planning clinics; and (5) buying a low-cost generic motor oil rather than a branded motor oil. The indirect assessment of initial attitude toward Mobil 1 motor oil, via the fifth item, represents an attempt to elicit responses relevant to the product type and class, since lack of familiarity with the specific brand could render a more direct approach invalid.

Subjects responded to four scales on each of the five issues. Three were semantic differential items: good/bad, harmful/beneficial, and wise/foolish. As can be seen from the second item, positive and negative anchors did not appear consistently on the same ends of the scale. This scale structure represented an attempt to ensure that subjects attended to each scale item individually. The fourth attitude item was a global measure ("My attitude toward ________ is:") assessed via a seven-point favorable/unfavorable scale. The scales were coded from -3 to +3, with -3 representing an extreme negative attitude toward the behavior advocated by the commercials.
(confronting friends about their driving after drinking and using a premium motor oil) and +3 representing a strong positive response.

Results. An assessment of the internal consistency reliability of the four items measuring prior attitude generated a Cronbach alpha coefficient of .92 when it was applied to the behavior advocated by the drinking and driving ad, and .95 for the use of a premium motor oil. In neither case would the removal of any item improve alpha. The scale's high reliability across both applications lends credence to its use as a reliable measure of subject attitude. The overall scale means were 1.86 and -0.30 for the drinking-driving confrontation and oil usage behaviors, respectively.

The intent of the test, as noted above, is to assess whether adequate variance exists in attitudes toward these topics to permit the use of prior attitude as a blocking factor. It is therefore appropriate to consider the proportions of subjects whose attitudes may be categorized as negative, neutral and positive. One cannot assert with a high degree of confidence that values approaching the scale midpoint from either direction accurately reflect positive or negative valence in attitude (average scale item variance was 2.45 for the drinking and driving ad and 2.79 for Mobil 1). Thus, rather than assigning all subjects to positive or negative attitudinal groups on the basis of pretest results,
those whose mean response to the scale was greater than \(-1\) and less than \(+1\) were categorized as holding a neutral attitude, while values at or below \(-1\) were treated as representing negative evaluations and those greater than or equal to \(+1\) were considered positive.

On the basis of that categorization, results show that 5.7 percent of the respondents had a negative attitude toward the issue of confronting their friends, with 12.6 percent neutral and 81.7 percent positive. With attitudinal responses skewed toward the positive end of the scale for the drinking and driving issue, it was clear that it could become difficult to test for effects of a prior negative attitude on the processing of such a message. The more substantial proportions of respondents expressing neutral and positive attitudes implies the adequate availability of subjects possessing preexisting attitudes within that range.

On the motor oil topic, responses were more evenly distributed between the three categories, with 38.4 percent negative (favoring the use of a low-cost generic motor oil rather than a premium brand), 38.5 percent neutral, and 23.1 percent positive. Results for the motor oil items were thus basically consistent with the expectation of attitudinal variance cited earlier, suggesting that the Mobil 1 ad adequately satisfies that criterion as well as the others established for the selection of commercial stimuli.
The minimal proportion of students expressing a negative attitude toward confronting their friends on the question of drinking and driving represents a potential limitation in the use of the drinking and driving ad to test the hypotheses involving prior attitude; i.e., a sample of reasonable size is likely to contain too few subjects with negative prior attitudes to afford analytical stability within that group. However, the decision was made to include the drinking and driving ad in the final experiment, along with the Mobil 1 commercial, for the following reasons: (1) the drinking and driving ad performs well relative to the other criteria outlined for commercial selection; (2) the alternative social issues tested -- South African divestment, cholesterol reduction and family planning clinics -- tended to yield even lower proportions of negative responses (two to three percent); and (3) the Mobil 1 commercial should permit the measurement of any effects attributable to or exclusively associated with a prior negative attitude, thereby allowing at least one test of each of the hypotheses.

Attention-Engaging Devices

The model for this research postulates that the use of an attention-engaging device should alter the cognitive focus of a television viewer in a state of high program elaboration, focusing his or her thoughts on the forthcoming
commercial. A test of that cognitive reorientation hypothesis requires the use of a device with the demonstrated ability to engage viewer attention. This implies a need for the pre-experimental assessment of the impact of the proposed experimental devices.

The device proposed for the drinking and driving commercial was the skeletal hand/crash image described earlier; a series of six audio tones leading into the message comprised the attentional element envisioned for the Mobil 1 ad. The device associated with the drinking and driving ad was, in the perception of the researcher, the more dramatic and engaging of the two stimuli. Through direct discussion of the crash scene with several individuals who viewed it in the early stages of stimulus development, and the observation of the responses of a few individuals in a viewing setting, it became obvious that the device proposed for the drinking and driving ad produced the desired result. It clearly engaged viewers’ attention and commonly elicited comments relative to its powerful imagery.

The impact of the audio tones proposed for the Mobil 1 ad was less clear. Therefore, a pretest was conducted to assess its ability to engage viewer attention.

Method. Twenty-five undergraduate marketing students viewed a segment of an "Alfred Hitchcock Presents" episode in which the Mobil 1 ad was embedded. Eleven were exposed
the attention-engaging device, while it was absent from the commercial viewed by the remaining subjects. Subjects watched about seven minutes of program action, followed by the commercial, with or without the attention-engaging device. Upon completion of the commercial, program action resumed. After two more minutes, the tape was stopped. The purpose of exposing viewers to two minutes of program action after exposure to the commercial was to allow time for commercial information to vacate short-term memory, to be stored in long-term memory or lost as a result of inadequate processing. Hence that which viewers retrieve from memory should legitimately reflect their attention level at the time of exposure.

As a preliminary test of the device's ability to facilitate recall, subjects in both conditions were asked to record everything they remembered about the advertisement, including words, pictures or scenes, and music. Subjects exposed to the device then responded to additional items, evaluating how realistic they perceived the ad to be, whether they found it to interrupt their thinking about the program, their recall of the attention-engaging device, and whether the beeps themselves became the focus of their thoughts. The advertisement recall section was coded in terms of the number of commercial elements correctly recalled. Except for a dichotomous question (yes/no) by which subjects indicated whether they recalled hearing the
sound of beeps at the beginning of the advertisement, all remaining responses were gathered using a seven-point agreement scale anchored by "strongly agree" (coded as 7) and "strongly disagree" (coded as 1). Appendix B contains the actual data collection instrument.

Results. While the mean number of commercial elements recalled did not differ significantly ($t=1.55, df=23, p>.10$) between those who heard the beeps (mean 9.91) and those who did not (mean 7.93), the size of the difference suggests its non-significance may be attributable to low statistical power rather than an ineffective stimulus. Sawyer and Ball (1981) advocate assessing the level of statistical power required to obtain a desired effect size prior to sampling and data collection. On the basis of the pretest results, assuming the observed variance to be a reasonable estimate of the population variance, such a power test indicates that a doubling of the sample size ($n=45$) should be sufficient to demonstrate significantly greater recall among viewers exposed to the device than among those viewing the commercial in its absence, at an alpha level of .05.

The beeps did not detract from the viewers' perception of the ad as being realistic (mean 5.64). Respondents appeared to feel unable to assess whether the commercial took their attention away (mean 3.73) or distracted them from thinking about the program (mean 4.09). All recalled
the beeps and subjects did not find their thinking focusing on the beeps themselves (mean 2.36).

On the basis of the unanimous recall of the beeps, the perceived realism of the commercial which contained them, and the seemingly substantive (though statistically nonsignificant) improvement in recall associated with them, it was concluded that the device should serve to affect viewers' cognitive processing without arousing suspicion. While results were not optimal, it was concluded that they were sufficient to warrant utilization of the beeps as an attention-engaging stimulus. The justification for that conclusion is two-fold: (1) the sample size in the final experiment was to be well in excess of the number of subjects which it was anticipated would allow for the demonstration of significant effects attributable to such a device; and (2) while differences between types of attention-engaging devices are not hypothesized, it was hoped that a comparison of this generic device with the message-relevant stimulus preceding the drinking and driving ad may generate some exploratory insights into the importance of the relevance of an attention-engaging device to the message it accompanies.

RESEARCH DESIGN

The diverse informational requirements associated with the eight hypotheses developed in the prior chapter are not
readily conducive to the utilization of a single research design for the testing of each proposition. Specifically, a test of hypotheses 1 and 2 requires the sensitive measurement of viewer elaboration levels associated with actual network programming. A valid test of hypotheses 3 to 8 requires the experimental manipulation of program elaboration at high and low levels. Furthermore, the development of appropriate manipulation levels for the latter hypothesis tests is most effectively accomplished via the utilization of the data generated by the investigation of the earlier hypotheses. Thus separate studies are developed to meet the specific information needs of the relevant hypotheses: (1) elaboration measurement (hypotheses 1 and 2); and (2) cognitive process investigation (hypotheses 3 to 8).

Elaboration Measurement

A determination of whether viewer elaboration of program content varies within programs (hypothesis 1) and among different commercial positions within a program (hypothesis 2), calls for the investigation of actual network programming in a way which allows for the sensitive measurement of elaboration levels. Thus subjects' time of response to a secondary task was measured as they watched recently taped network programs.
A preliminary subjective perusal of program offerings on commercial television stations in the Columbus, Ohio viewing area for the spring of 1986 led to the identification of five programs which were perceived to potentially possess within-program variance in the generation of viewer elaboration: "Alfred Hitchcock Presents," "The Twilight Zone," "Amazing Stories," "Sixty Minutes," and "PM Magazine." The former three, it was felt, might induce increasing elaboration as conflict or suspense mounted over the course of the program; in the latter programs, viewer interest levels (and hence elaboration) were expected to vary between segments. After viewing the five programs over a two-week period, two were selected for explicit testing of their elaboration levels: an episode of "Alfred Hitchcock Presents" entitled "Road Hog," and a "PM Magazine" episode with features on Linda Evans, tornado victims, camel racing, and a yodeling New Jersey state trooper. The commercials were removed to allow the continuous, uninterrupted measurement of program elaboration, that being the critical criterion variable at this stage of the research.

A procedure eliciting response times for a secondary task provides a continuous measure of viewer elaboration from the beginning to the end of the program. In preparation for the task, a Commodore C-64 computer was programmed to dub audio tones onto the videotape at random.
intervals ranging from three to nine seconds, with five tones produced in each thirty-second program segment. The tones provided the stimulus to which viewers were to respond as the "secondary task." Response times provide an indication of the amount of thought generated by the program, television viewing being the "primary task."

In fourteen sessions conducted over three days, forty-nine undergraduate marketing students at The Ohio State University viewed the two programs. Seated in specially constructed cubicles, they were visually isolated from one another, but had a direct view of a video monitor. Within each cubicle was a hand-held push-button device. After greeting the entering subjects and seating them in the cubicles, the researcher explained that they were participating in a study of viewer response to a variety of types of programming currently aired on network television. The researcher then demonstrated the use of the push-button device and instructed the subjects to press the button after each tone was heard. To familiarize subjects with the procedure, the videotape began with 45 seconds of a color bar and accompanying tones. Then, without further instruction, subjects watched the two programs (first "Alfred Hitchcock Presents," followed by "PM Magazine") and completed the simultaneous response-time task, pressing the hand-held button each time a tone sounded. The sound of the tone on the videotape activated a computerized timer, which
then recorded each subject's response time in milliseconds, thus providing a continuous measure of elaboration across the programs. Since the construct of interest is within-program (rather than between-program) variance in viewer elaboration levels, it was not considered necessary to counterbalance the order of program presentation.

Cognitive Process Investigation

A second experiment, designed as a test of hypotheses 3 to 8, examines the impact of differential program elaboration on the processing of commercial messages. Also investigated is the effect of including an attention-engaging device. A between-subjects treatment-by-blocks design is employed, with manipulations of program elaboration and an attention-engaging device as treatment factors, and prior subject attitude toward the advertised product or issue as a blocking factor. This design is replicated across the two commercials -- the Mobil 1 and drinking and driving ads described earlier -- in an attempt to demonstrate the generalizability of the hypothesized relationships across messages of diverse formats and objectives.

Program Stimulus. While both "Alfred Hitchcock Presents" and "PM Magazine" demonstrated adequate variance in program elaboration, the former program was selected for two reasons. First, it demonstrated a somewhat more regular
pattern of rising and falling response times than did "PM Magazine." (Response times are discussed in more detail in the following chapter.) Second, the elaboration peak in the "PM Magazine" episode occurred at a point in which the television audience viewed a nude photograph of Linda Evans. This gave rise to a concern for a potential gender effect, in which elaboration may be greater for male than female subjects. The elaboration peaks in "Alfred Hitchcock Presents," on the other hand, stem from program action which was perceived by the researcher as being less susceptible to gender differences.

The concern for gender differences represents a subjective judgment on the part of the researcher. While students of both genders participated in the first phase of data collection, subject identification -- including gender information -- was not recorded. Consequently, an empirical comparison of response times on the basis of subject gender was not possible.

**Experimental Factors.** High and low levels of program elaboration were established on the basis of response times obtained in the earlier investigation of elaboration levels. Commercial placement within the program was based on two criteria: (1) adequate variability in response times; and (2) the avoidance of "unnatural" positions (those where a viewer would not expect a break -- e.g., awkwardly interrupting dialogue or following too soon after an earlier
advertisement). The intent of the latter criterion was to prevent distraction attributable to a demand artifact (confusion or hypothesis guessing on the part of the viewer) rather than inherent characteristics of the program, and to enhance external validity.

The low-elaboration position selected appears seven minutes into the program. Hitchcock's prologue has ended, and some casual conversation has taken place at an industrial site, where the workers are about to break for lunch. No thought-provoking or exciting action has occurred. Following the commercial break, an accident takes place and one of the workers, Joey, is seriously injured. In the race to the hospital, the "road hog" (a traveling salesman) makes his appearance and drives the desperate party off the road, leading to Joey's untimely death. The high-elaboration position occurs six minutes before the end of the program, when the salesman is made aware of a foreign substance in his drink, and he and the audience believe he has been poisoned. The mean response time for the low-elaboration position was .475 seconds, compared to .816 seconds in the high-elaboration location. A paired comparison t-test reveals that the mean difference of .345 seconds is highly significant (t=3.82, df=40, p < .01).

The placement of commercials at different positions within a single program avoids some of the problems which have beset earlier research efforts. Specifically, this
procedure precludes the confounding of elaboration with program type. It also avoids noise due to the numerous other uncontrolled variables inherent in the use of different programs as a manipulation of elaboration.

The presence or absence of an attention-engaging device at the beginning of the commercial represents the second treatment factor. The Mobil 1 motor oil ad in the attention-engaging device condition was preceded by six beeps. The beeps were omitted from the conditions calling for the absence of such a device. The brief handshake/car crash scene served as the device employed with the drinking and driving commercial. To keep time and amount of information constant, the scene was incorporated into all versions of the drinking and driving ad. However, in the condition calling for the presence of an attention-engaging device it appeared at the beginning of the commercial, whereas it was placed at the end in the alternative condition.

Utilization of subjects' prior attitude toward the advertised product or issue requires a preliminary assessment of that construct. For that purpose, attitudinal responses were collected one week prior to participation in the final experiment. The instrument which served to assess attitudinal variance in the pretest reported earlier (questionnaire in Appendix A) was administered to the
classes from which student volunteers were recruited for the later experimental sessions.

Students were informed that the prior attitude measure was a public opinion study undertaken by an independent research agency. This explanation was intended to prevent subjects' perceiving the pretest and the later experimental session as related. Such a perception, it was feared, could lead them to anticipate, and therefore more actively process, information about the topics addressed in the pretest questionnaire. To further prevent subjects' associating the instrument with the later experiment, data collection took place two days before informing subjects of the forthcoming experiment and requesting their participation.

Data thus collected provided the basis for blocking on subjects' prior attitudes toward the topic of the experimental ads. Groups were assigned on the basis of the same values as in the earlier attitudinal pretest (negative: \( x < -1 \); neutral: \(-1 < x < 1\); positive: \( x > 1\)). As anticipated on the basis of pretest results, while the Mobil 1 ad demonstrated sufficient variance to block on three attitudinal levels (positive, neutral and negative), the drinking and driving commercial elicited no strong negative attitudes. Hence attitude in the latter instance was treated as a two-level factor (positive and neutral). For the drinking and driving ad, 40 subjects fell in the neutral
group, with 80 in the positive. Of Mobil 1 ad viewers, 36 were assigned to the negative attitude group, 68 to the neutral, and 30 to the positive.

Sample. With program, commercials and attention-engaging devices combined in accordance with the decisions emerging from the pretests, stimuli were in place for the final experiment. The sample originally consisted of 266 undergraduate marketing students from The Ohio State University and the State University of New York at Buffalo. Responses from twelve subjects were discarded as unusable because of prior exposure to the experimental program or commercials. While their inclusion does not substantially alter the results, a conservative decision was made to remove them in an effort to ensure that observed commercial results represent the relatively pure effect of the experimental factors, uncontaminated by prior familiarity with the stimuli. The twelve subjects thus discarded were essentially uniformly distributed among experimental conditions -- i.e., no more than two were removed from any single cell. Hence their removal should not have introduced any systematic bias. For purposes of analysis, then, the sample size totaled 254, with 134 viewing the Mobil 1 commercial and 120 assigned to the drinking and driving ad conditions. Table 1 depicts the within-cell sample sizes associated with both commercials.
Procedures. In recruiting subjects for the later experiment, minimal information was conveyed. Instructors circulated sign-up sheets with a brief explanation that students could obtain extra credit (amount of credit was left to the discretion of individual instructors) for participating in some forthcoming research.

Upon subjects' arrival at the experimental location, a researcher informed them that the study was undertaken in cooperation with the university's Department of Communication, and that its purpose was to assess viewer enjoyment of some recently aired television programs. The researcher then encouraged subjects to relax and enjoy the program, and advised them that at some point the tape would be stopped and they would be asked to provide some information about their enjoyment of the program. Subjects then viewed one of the experimental videotapes in a darkened room. Two minutes after the end of the ad, the video monitors were switched off and the researcher distributed
the measurement instrument in its appropriate version (Mobil 1 or drinking and driving). Thus subjects in the low-elaboration condition saw the first seven minutes of the program, one of the test commercials, and two additional minutes of program action before the tape was stopped. Those in the high-elaboration condition saw all but the last four minutes of the program, since their test commercial was placed six minutes before the end. After completing the questionnaire, subjects were thanked for their participation and dismissed.

**Measures.** The cover sheet of the measurement instrument collected subjects' identification numbers and provided general instructions on responding to semantic differential scales. Thereafter subjects responded to items assessing the following constructs, in the order listed: commercial recall, commercial-relevant cognitive responses, message recall, attitude, behavioral intention, beliefs, product/issue involvement, attitude toward the ad, program mood state, program involvement, attitude toward the program, experience relevant to the topic of the advertisement, prior exposure to the stimuli, hypothesis guessing, adherence to experimental instructions, prior knowledge of the experiment, and program elaboration and attention-engaging device manipulation checks. Appendix C contains the full measurement instrument.
The commercial recall measure asked subjects to "identify each commercial you recall having seen with the program." This item is distinct from the later message recall measure, in which subjects were instructed to "write down EVERYTHING you remember about the advertisement," including "the words, the pictures or scenes, the music, and whatever else you remember about the ad." The former measure assesses whether subjects had any recollection of having seen the test ad, whereas the latter captured the amount of learning which occurred through exposure to the commercial -- i.e., the specific message details which viewers remembered. At the end of both recall tasks, subjects were instructed not to return to the pages just completed to make any changes or additions.

For the cognitive response task, subjects were allowed three minutes to record "your own thoughts and ideas" about Mobil 1 motor oil or confronting their friends about drinking and driving. The instructions, modeled after those used by Petty (1977), called for subjects to record all relevant thoughts and ideas, one per box, on a form provided in the questionnaire. Subjects were informed that favorable or unfavorable thoughts, or a mixture of the two, were acceptable. Finally, the instructions advised subjects not to concern themselves with spelling and grammar, and encouraged total honesty. All subjects in a session began the thought-listing task together, and none were permitted
to move on to the remaining items in the questionnaire until the full three minutes had elapsed.

After three minutes, the experimenter advised subjects to stop listing their thoughts. Most finished early and waited for the researcher's instructions to proceed. Thereafter, subjects evaluated each thought as positive (favorable toward the topic of the ad), neutral (neither favorable nor unfavorable) or negative (unfavorable). The validity of this self-evaluation procedure is well established (e.g., Petty 1977, Burnkrant and Howard 1984, MacKenzie 1986).

In addition to subjects' self-evaluation of the valence of cognitive responses, two independent judges coded each thought as cognitive or affective in nature, and as representing "message" or "own" thoughts. Judges were instructed to code as "cognitive" any thoughts which were not affect laden, and which emphasized functional performance or utilitarian motives. Affective thoughts represented the expression of attitudes, emotions, aesthetic considerations or values. Message thoughts were those which were close approximations or paraphrases of information directly conveyed by the commercial message. Own thoughts reflected personal elaboration of message content.

Estimates of interjudge reliability were obtained for each category on the basis of agreement among judges about the frequency of each type of cognitive response in a
subject's list (Winer 1971, MacKenzie 1986): cognitive, \( r = 0.91 \); affective, \( r = 0.83 \); message, \( r = 0.90 \); own, \( r = 0.82 \). All correlations were significant (\( p < 0.01 \)). The level of interjudge reliability is thus comparable to that obtained for prior cognitive response data (e.g., Belch 1982, Wright 1973, MacKenzie 1986). The mean of the two judges' tallies of the number of responses in each category served as the criterion measure for subsequent analysis of cognitive response data.

Judges coded responses to the message recall task in terms of total number of commercial elements recalled, whether each represented the recall of a central message element or a peripheral cue (Petty and Cacioppo 1981). Instructions to the judges called upon them to code as "central" any commercial elements listed which were directly relevant to the message's persuasive intent, and as "peripheral" such tangential background or executional features as colors, clothing, and music style. Again, interjudge reliability was high (total number of elements recalled, \( r = 0.91 \); central, \( r = 0.90 \); peripheral, \( r = 0.88 \); all significant at \( p < 0.01 \)). As with the cognitive response data, means of the two judges' assessments of the total number of commercial elements recalled, and the mean number coded as central and peripheral, served as the recall indices for subsequent analysis.
Seven semantic differential items comprised the product/issue attitude scale (good/bad, harmful/beneficial, wise/foolish, undesirable/desirable, pleasant/unpleasant, punishing/rewarding, positive/negative). This was followed by a global attitude measure ("My attitude toward Mobil 1 motor oil/confronting my friends about their driving after they have been drinking is," followed by a seven point scale anchored by "favorable" and "unfavorable"). The Cronbach alpha associated with the seven-item scale was .84. Deletion of the pleasant/unpleasant item, however, improved the reliability to .89. For subsequent analysis, the attitude measure employed is the mean response to the items, with the pleasant/unpleasant item deleted.

Because of the potential impact of involvement in the topic of the advertisement on the processing of the information it conveys, a measure of product/issue involvement was included. This facilitates the identification of differences in involvement levels across the two commercials, which may account for processing differences unexplained by the experimental factors. Four of the items from the Zaichkowsky (1985) Personal Involvement Inventory were used for this purpose ("Using a premium grade, cold weather motor oil" or "Becoming involved in a friend's drinking and driving behavior" is: important/unimportant, irrelevant to me/irrelevant to me, means a lot to me/means nothing to me, not needed/needed).
This scale yielded a Cronbach alpha coefficient of .87, with all items contributing positively to the observed reliability. Hence all were retained for subsequent analysis.

The entire Personal Involvement Inventory scale was applied to the construct of involvement in the program, and yielded an alpha of .96. The intent of utilizing the full PII to assess program involvement was to generate data for other research purposes extraneous to the objectives of the present research.

Five semantic differential items comprised the scale for attitude toward the ad (good/bad, undesirable/desirable, pleasant/unpleasant, unpersuasive/persuasive, and positive/negative). A global attitude measure followed these items, again in semantic differential form ("My attitude toward the Mobil 1/drinking and driving ad" is favorable/unfavorable). The coefficient for the five-item scale was .62. As in the product/issue attitude measure, the pleasant/unpleasant item detracted from the scale's reliability. With its omission alpha increased to .66. To enhance scale reliability, and to maintain relative consistency with other attitude measures, the pleasant/unpleasant item is excluded as a measure of attitude toward the ad in subsequent analysis, with the mean of the remaining items serving as the attitude index. Even with the slight increase in alpha which results from this adjustment, however, the reliability of the scale
measuring attitude toward the ad remains low. This should be considered in any attempts to draw inferences with respect to that construct.

Subjects responded to three semantic differential measures of program mood: uplifting/depressing, sad/happy, and positive/negative. This mood scale yielded an alpha of .71, and all items were retained for relevant analysis. The purpose of including the mood items was to provide a covariate which could establish whether program elaboration effects occur independently of program-induced mood states.

To assess the effectiveness of the attention-engaging device, subjects responded to questions addressing their recall of the device (yes/no) and whether it "took my attention away from the program" (five-point agreement scale). Both devices generated high recall among those in the device-present conditions (Mobil 1 "beeps" -- 72.3 percent, drinking and driving "crash" -- 63.2 percent). However, many subjects appeared to be unable to assess whether the devices took their attention away from the program, with mean responses (3.0 and 2.6 for beeps and crash scene, respectively) being at or near the scale midpoint ("neither agree nor disagree," coded as 3). Results of the manipulations checks thus suggest that the devices succeeded in attracting sufficient notice to result in subsequent recall, but are inconclusive as an indicator
of whether they conveyed sufficient impact to reorient viewer attention.

To eliminate demand artifacts, subjects were asked at the end of the experiment to describe in their own words "what you believe to be the purpose or objective of this study." None of the subjects accurately guessed the purpose of the study, nor did any make a connection between program and commercial, which it was feared might adversely affect their normal processing of message information. Subjects tended either to believe the cover story or to view the experiment as a conventional advertising test (independent of program context). The latter perception was not viewed as a threat to internal validity, since the impact of such a belief should be the enhanced processing of commercials across all conditions, thus minimizing differences between experimental cells and rendering hypothesis tests more conservative than in an environment completely uncontaminated by hypothesis guessing.

Response Time Modeling

The experiment described in the prior section sets the stage for the testing of hypotheses 3 to 8. However, the availability of secondary task response time measurement, developed for the earlier stages of the study, provides an opportunity to enjoy the advantage of a "multiple methods" approach to the issues under investigation. Thus a third
experiment was designed in which 41 students viewed the test program with commercials inserted at low- and high-elaboration positions, and with computerized tones dubbed onto the tape (during both program and commercial time) at random three-to-nine second intervals. Collection of response times was accomplished in a physical setting and using a procedure identical to those employed in the elaboration measurement phase. To avoid order effects, commercial order was counterbalanced, with half of the subjects viewing the Mobil 1 ad first (in the low-elaboration position) and the drinking and driving ad second (high elaboration), and half viewing the advertisements in reverse order. Program action was stopped two minutes after the commercial in the later position (high elaboration), and subjects responded to the measurement instrument related to the most recent ad (the same instrument as was described in the prior section).

In view of the continuity of response time data, results are available for low- and high-elaboration commercial positions, and for all segments of the tape -- before, during and after the advertisements. However, this experiment does not represent a full factorial design with respect to the other measures, since all subjects responded to instruments for the commercial in the high-elaboration position. The rationale for this exclusion of data collection in the low-elaboration position is two-fold.
First, it was felt that a within-subject comparison of response times in the low- and high-elaboration positions may provide valuable information with respect to viewers' utilization of cognitive capacity. This is explained more fully below. It is possible that responding to a series of questions about the first commercial might affect the intensity with which viewers would attend to a later advertisement, thereby contaminating response time results in the latter position. Second, the limited availability of subjects became a consideration. Committing more subjects to this experiment in an effort to provide a full factorial design and still have adequate sample size in the high-elaboration condition for the desired within-subject analysis would have necessitated using fewer subjects in the experiment described earlier. Since that experiment served as the major vehicle for hypothesis testing, such a decision was considered inappropriate because of its consequence of reducing statistical power where it was most needed.

Despite its limitations, the combination of response time and self-report measures in this experiment accomplishes several purposes. First, it facilitates the modeling of key dependent variables (cognitive response, recall, attitude and behavioral intention) as a function of program elaboration, as indicated by secondary task response times. Regression models thus derived can provide a degree
of triangulation with respect to results obtained through different methodology in the other experiment.

Second, a within-subject analysis of response time differences across high- and low-elaboration commercial positions may be instructive, as suggested above. In view of cognitive capacity limitations, some positions may arouse sufficient program-relevant thought to utilize most available cognitive resources. Others clearly should not. Therefore, if a viewer is in a high program elaboration state, the overall level of cognitive activity (encompassing program-relevant, commercial-relevant and idiosyncratic thought) may remain relatively constant as the viewer is exposed to a novel stimulus (the commercial), because insufficient resources exist for an increase in the total elaboration level. Thoughts may shift from program to commercial, but the total amount of thought should not increase, since viewers were already operating at or near capacity. By contrast, a commercial in a low-elaboration position may induce an increase in the total elaboration level, as more available cognitive resources are committed to the processing of the novel stimulus. Secondary task response times provide the necessary experimental measure of the total elaboration levels for the investigation of such effects. The dearth of existing evidence at this level of specificity, together with the limited use to date of response time data to investigate such phenomena, render the
expectation of supportive results largely speculative. Hence response time results are not specifically hypothesized, but provide the potential for some interesting exploratory insights.

Third, the two experiments collect identical data, with respect to the critical dependent variables, one in the presence and the other in the absence of the secondary task. Such a situation permits one to evaluate whether the response time measure is sufficiently obtrusive and unnatural to alter viewers' normal responses.

Finally, the availability of such data makes possible the pilot testing of a relationship which is tangential to the objectives and hypotheses of the present investigation, but is of potential importance to future research in this area -- the effect of post-commercial program elaboration. The modeling of the dependent variables as a function of pre- and post-commercial program elaboration permits one to assess whether program elaboration effects arise with respect to action observed following the commercial as well as prior to its appearance, and what the nature of such effects may be.

This chapter has focused on the development of experimental stimuli and on the design, procedures and measures associated with three research phases -- elaboration measurement, capacity utilization assessment and cognitive process investigation. With stimuli developed,
procedures established, data gathered and measures validated, the stage is set for the testing of the hypotheses outlined earlier. The following chapter contains a report of those analyses.
CHAPTER V
EXPERIMENTAL RESULTS

How does viewer elaboration of television program content affect the processing of commercial messages? That question and the related issues identified earlier in the objectives and hypotheses provided the focus for an empirical examination of the experimental data. This chapter presents the results of hypothesis tests performed on the data generated over the experiments identified in the prior chapter. It concludes with an assessment of alternative measures of program elaboration.

ELABORATION MEASUREMENT

Hypothesis 1: Points within a television program may be located that engage the audience in significantly different amounts of elaboration.

Relative differences in secondary task response times are an indication of varying levels of program elaboration. Thus high levels of program elaboration are associated with a decrement in secondary task response efficiency (i.e., longer response times), relative to segments characterized by minimal elaboration. Consistent with the above hypothesis, marked differences in response times occurred in relatively predictable positions. In the "Alfred Hitchcock"
episode, mean response times ranged from a low of .411 seconds (two minutes into the program, during Mr. Hitchcock's introduction) to a high of .959 seconds (nine minutes before the end -- a point at which the plot thickens, as does the protagonist’s beverage when it is apparently poisoned). A paired comparison t-test reveals the mean difference between the two positions (.529 seconds) to be highly significant ($t=5.15; \ p < .001$). The range for "PM Magazine" was roughly equivalent -- .431 seconds (Linda Evans discussing growing older) to 1.035 (Ms. Evans photographed in the nude). Again, the mean difference (.617) was significant ($t=3.00; \ p < .01$). Hypothesis 1 thus finds support in both programs.

Response time means and standard deviations for the "Road Hog" episode of "Alfred Hitchcock Presents," collapsed across thirty-second intervals for the sake of brevity, are shown in Table 2 on the following page. The high- and low-elaboration positions reported earlier fall within segments 13 and 37, as shown in the table. The difference in response times between the values cited earlier and those contained in the table reflects the fact that the table values are the means of the five tones generated in the respective thirty-second segments, of which the values cited earlier are but one.
Table 2

Alfred Hitchcock Presents -- Viewer Response Times

<table>
<thead>
<tr>
<th>30-Second Segment</th>
<th>Mean Response Time (in milliseconds)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>642.8</td>
<td>183.6</td>
</tr>
<tr>
<td>2</td>
<td>454.2</td>
<td>19.4</td>
</tr>
<tr>
<td>3</td>
<td>448.2</td>
<td>27.4</td>
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<tr>
<td>4</td>
<td>492.8</td>
<td>70.8</td>
</tr>
<tr>
<td>5</td>
<td>424.6</td>
<td>20.1</td>
</tr>
<tr>
<td>6</td>
<td>532.0</td>
<td>79.7</td>
</tr>
<tr>
<td>7</td>
<td>512.0</td>
<td>57.5</td>
</tr>
<tr>
<td>8</td>
<td>514.8</td>
<td>65.7</td>
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<td>9</td>
<td>498.6</td>
<td>38.3</td>
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<tr>
<td>10</td>
<td>552.8</td>
<td>60.0</td>
</tr>
<tr>
<td>11</td>
<td>520.4</td>
<td>59.1</td>
</tr>
<tr>
<td>12</td>
<td>510.8</td>
<td>41.0</td>
</tr>
<tr>
<td>13</td>
<td>598.6</td>
<td>178.1</td>
</tr>
<tr>
<td>14</td>
<td>572.2</td>
<td>97.3</td>
</tr>
<tr>
<td>15</td>
<td>537.8</td>
<td>53.7</td>
</tr>
<tr>
<td>16</td>
<td>552.4</td>
<td>111.8</td>
</tr>
<tr>
<td>17</td>
<td>559.6</td>
<td>59.1</td>
</tr>
<tr>
<td>18</td>
<td>608.2</td>
<td>74.3</td>
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<tr>
<td>19</td>
<td>727.6</td>
<td>83.4</td>
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<td>20</td>
<td>624.0</td>
<td>138.4</td>
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<tr>
<td>21</td>
<td>626.6</td>
<td>79.8</td>
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<tr>
<td>22</td>
<td>648.4</td>
<td>179.7</td>
</tr>
<tr>
<td>23</td>
<td>529.8</td>
<td>41.0</td>
</tr>
<tr>
<td>24</td>
<td>558.0</td>
<td>97.1</td>
</tr>
<tr>
<td>25</td>
<td>601.0</td>
<td>101.7</td>
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<tr>
<td>26</td>
<td>641.6</td>
<td>66.8</td>
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<tr>
<td>27</td>
<td>584.2</td>
<td>29.2</td>
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<td>28</td>
<td>700.4</td>
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<td>29</td>
<td>593.4</td>
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<td>31</td>
<td>626.0</td>
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<td>32</td>
<td>629.0</td>
<td>82.1</td>
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<td>33</td>
<td>665.0</td>
<td>41.3</td>
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<td>34</td>
<td>648.8</td>
<td>151.3</td>
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<tr>
<td>35</td>
<td>608.0</td>
<td>67.3</td>
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<tr>
<td>36</td>
<td>593.4</td>
<td>74.2</td>
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<tr>
<td>37</td>
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<td>38</td>
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<td>51.0</td>
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<td>606.4</td>
<td>103.9</td>
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<td>40</td>
<td>575.2</td>
<td>69.3</td>
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<td>41</td>
<td>599.5</td>
<td>93.1</td>
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<tr>
<td>42</td>
<td>649.2</td>
<td>105.6</td>
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<tr>
<td>43</td>
<td>648.8</td>
<td>79.6</td>
</tr>
</tbody>
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Table 2 (continued)

<table>
<thead>
<tr>
<th>30-Second Segment</th>
<th>Mean Response Time</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>557.6</td>
<td>70.7</td>
</tr>
<tr>
<td>45</td>
<td>509.8</td>
<td>32.3</td>
</tr>
<tr>
<td>46</td>
<td>486.5</td>
<td>20.5</td>
</tr>
</tbody>
</table>

Hypothesis 2: Ads, as they are currently placed in television programs, occur at points that differ significantly in terms of program elaboration.

The "Road Hog" episode of "Alfred Hitchcock Presents" originally contained three commercial clusters -- one immediately following Alfred Hitchcock's prologue, one midway through the episode, and one just before Mr. Hitchcock's epilogue. Mean viewer response times for the tones immediately preceding the original three commercial breaks were .429, .713 and .588 seconds, respectively. A one-way analysis of variance reveals that mean response times differ significantly across the three positions (F=19.86, p < .0001). The Scheffe multiple comparison procedure (which is also employed for the contrasts reported hereafter with respect to other hypothesis tests) indicates that the mean response time in the first position differs significantly from that observed both for the second and for the third (p < .01). The means associated with the latter two positions did not demonstrate significant differences by the Scheffe criterion. Two highly significant differences verify the contention that viewer elaboration of program
content varies between actual commercial positions (hypothesis 2) and highlights the need to understand how this phenomenon may affect the processing of advertising messages.

COGNITIVE PROCESS INVESTIGATION

Hypotheses 3 to 8 address the impact of program elaboration on the processing of television commercials. Specifically, they predict interactive effects of program elaboration, prior attitude and the presence or absence of an attention-engaging device on commercial-relevant thought, recall, attitude and behavioral intention. The prior assessment of viewer attitudes, and the manipulation of program elaboration and attention-engaging devices provide the requisite conditions for the valid testing of those hypotheses. As discussed in the prior chapter, the design is replicated across two commercials. For each ad, program elaboration was manipulated at high and low levels. The attention-engaging device factor also possessed two levels -- present and absent -- although the device employed for the drinking and driving ad was relevant to the message (the crash scene with the skeletal handshake), whereas that utilized with the Mobil 1 commercial was irrelevant to message content (audio beeps preceding the ad). Finally, as a third (blocking) factor, subjects were categorized in accordance with their prior attitude -- a three-level
variable for Mobil 1 (positive, neutral and negative), and a
two-level variable for the drinking and driving ad (positive
and neutral).

Cognitive Response Activity.

ANOVA results for the cognitive response measures are
shown in Tables 3 and 4 for the Mobil 1 and drinking and
driving ads, respectively. As noted in the discussion of
experimental measures in chapter 4, the instructions to the
thought-listing task called upon viewers to list all of
their thoughts relevant to the topic of the test commercial.
Hence "total thoughts" in the tables refers only to
commercial-relevant thoughts, and should not be interpreted
as an index of total cognitive activity. A preliminary
reading of responses revealed that all subjects properly
followed instructions and limited thoughts listed to those
relevant to the topic of the commercial. In the following
discussion, "positive thoughts" refers to the number of
responses which subjects evaluated as favorable to the
message of the ad, while "negative thoughts" are those
perceived as unfavorable.

Main Effects. A comparison of the total number of
commercial-relevant thoughts listed by viewers in the two
program positions reveals no significant main effect of
program elaboration for either advertisement. However,
significant differences emerged between the high- and
### Table 3

**ANOVA of Cognitive Response Activity -- Mobil 1**

**F-Ratios for Dependent Variables**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Degrees of Freedom</th>
<th>Total Thoughts</th>
<th>Positive Thoughts</th>
<th>Negative Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Elabor. (A)</td>
<td>1</td>
<td>0.61**</td>
<td>0.25*</td>
<td>0.09</td>
</tr>
<tr>
<td>Prior Attitude (B)</td>
<td>2</td>
<td>4.66**</td>
<td>2.73*</td>
<td>0.47</td>
</tr>
<tr>
<td>Attention Device (C)</td>
<td>1</td>
<td>0.37</td>
<td>0.17</td>
<td>2.50</td>
</tr>
<tr>
<td>A X B</td>
<td>2</td>
<td>1.21</td>
<td>1.15</td>
<td>0.07</td>
</tr>
<tr>
<td>A X C</td>
<td>1</td>
<td>12.50***</td>
<td>3.73*</td>
<td>2.95*</td>
</tr>
<tr>
<td>B X C</td>
<td>2</td>
<td>2.51*</td>
<td>2.78*</td>
<td>0.39</td>
</tr>
<tr>
<td>A X B X C</td>
<td>2</td>
<td>0.52</td>
<td>1.36</td>
<td>1.59</td>
</tr>
<tr>
<td>Residual</td>
<td>94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td></td>
<td></td>
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</tbody>
</table>

**Cognitive Affective Message Own**

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Degrees of Freedom</th>
<th>Total Thoughts</th>
<th>Positive Thoughts</th>
<th>Negative Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Elabor. (A)</td>
<td>4.47***</td>
<td>2.87*</td>
<td>3.32*</td>
<td>0.32</td>
</tr>
<tr>
<td>Prior Attitude (B)</td>
<td>4.24**</td>
<td>1.68</td>
<td>1.83</td>
<td>3.96**</td>
</tr>
<tr>
<td>Attention Device (C)</td>
<td>9.14***</td>
<td>5.19**</td>
<td>0.14</td>
<td>0.55</td>
</tr>
<tr>
<td>A X B</td>
<td>0.49</td>
<td>0.49</td>
<td>0.55</td>
<td>0.97</td>
</tr>
<tr>
<td>A X C</td>
<td>11.41***</td>
<td>10.27***</td>
<td>2.24</td>
<td>12.02***</td>
</tr>
<tr>
<td>B X C</td>
<td>0.88</td>
<td>0.62</td>
<td>0.11</td>
<td>0.35</td>
</tr>
<tr>
<td>A X B X C</td>
<td>1.03</td>
<td>1.80</td>
<td>3.65*</td>
<td>4.09**</td>
</tr>
</tbody>
</table>

*p < .10
**p < .05
***p < .01
Table 4

ANOVA of Cognitive Response Activity -- Drinking and Driving

F-Ratios for Dependent Variables

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Degrees of Freedom</th>
<th>Total Thoughts</th>
<th>Positive Thoughts</th>
<th>Negative Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Elabor. (A)</td>
<td>1</td>
<td>2.68</td>
<td>0.36</td>
<td>0.00</td>
</tr>
<tr>
<td>Prior Attitude (B)</td>
<td>1</td>
<td>3.59*</td>
<td>3.41</td>
<td>11.12***</td>
</tr>
<tr>
<td>Attention Device (C)</td>
<td>1</td>
<td>1.43</td>
<td>0.65</td>
<td>4.92**</td>
</tr>
<tr>
<td>A X B</td>
<td>1</td>
<td>0.21</td>
<td>0.93</td>
<td>0.02</td>
</tr>
<tr>
<td>A X C</td>
<td>1</td>
<td>4.55**</td>
<td>4.35**</td>
<td>1.55</td>
</tr>
<tr>
<td>B X C</td>
<td>1</td>
<td>0.90</td>
<td>0.27</td>
<td>1.13</td>
</tr>
<tr>
<td>A X B X C</td>
<td>1</td>
<td>0.00</td>
<td>0.01</td>
<td>0.06</td>
</tr>
<tr>
<td>Residual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cognitive Affective Message Own

| Program Elabor. (A)         | 6.22**            | 5.19**         | 7.30***           | 0.44              |
| Prior Attitude (B)          | 4.44**            | 0.35           | 5.26**            | 1.30              |
| Attention Device (C)        | 1.73              | 0.58           | 0.65              | 1.49              |
| A X B                      | 0.06              | 2.01           | 4.13**            | 0.01              |
| A X C                      | 0.98              | 10.83***       | 2.25              | 3.58              |
| B X C                      | 1.65              | 0.05           | 4.13**            | 0.94              |
| A X B X C                  | 0.09              | 0.02           | 1.61              | 0.04              |

* p < .10
** p < .05
*** p < .01
low-elaboration positions in the types of thoughts induced. Viewers of the Mobil 1 ad in the high-elaboration position listed more thoughts reflecting a cognitive orientation than did those who saw the same commercial in the low-elaboration segment (means of 4.07 and 3.14 responses, respectively). Correspondingly, the differences in the number of affectively oriented responses approached significance ($p < .10$), with fewer associated with the high-elaboration than the low-elaboration condition (means of 1.00 and 1.37, respectively). The drinking and driving ad demonstrated the same pattern of results for cognitively oriented responses (high-elaboration condition 5.96, low-elaboration 4.92, $p < .05$). The effect of program elaboration on the number of cognitively oriented responses suggests that viewers in a high program-elaboration condition adopt a more cognitively oriented approach to the processing of commercial messages than do those who are less engaged in program-relevant thought.

Differences also emerged in the relative quantities of "message thoughts" generated in response to the ads. "Own thoughts" dominated across all conditions, accounting for 88.3 percent of all thoughts listed. However, viewers in the high-elaboration conditions for the drinking and driving ad listed significantly more message thoughts than their counterparts in the low-elaboration conditions (means of .81 and .41, respectively, $p < .01$). Among viewers of the Mobil
commercial the difference in means emerged in the opposite direction (means of .64 and .90 for high- and low-elaboration conditions, respectively), although it only approached significance (p < .10).

An inference drawn exclusively on the basis of the significant result obtained for the drinking and driving ad would be that high levels of program elaboration favor the generation of message thoughts. Should the marginally significant result associated with the Mobil 1 ad reflect a real pattern of thought production in the population, however, such an inference would be misleading. It is possible that the apparent discrepancy between the two ads is attributable to a difference in product or issue involvement. A comparison of involvement scores for the two commercial topics reveals a higher mean level of involvement for the drinking and driving ad than was observed with respect to the Mobil 1 commercial (means of 1.84 and -1.36, respectively, on a scale anchored by +3 and -3; t=3.39, p < .01). An alternative explanation, then, is that a high level of program elaboration facilitates message thought generation when product or issue involvement is high, and suppresses it when involvement in the topic of the ad is low.

With respect to prior attitudes, one might expect viewers with strong established attitudes toward the advertised product or issue (either positive or negative)
to have a greater amount of relevant experience, or at least to perceive the message as possessing more personal relevance, than would those expressing weaker or neutral predispositions. Hence, those in the positive/negative prior attitude groups may be expected to express a greater number of commercial-relevant cognitive responses than would those with weak or neutral prior attitudes. Consistent with this expectation, the mean number of cognitive responses to the Mobil 1 ad was higher for subjects with prior positive and negative prior attitudes (5.67 and 5.73, respectively) than it was among their counterparts who were more neutrally predisposed (4.47). Scheffe comparisons reveal that the negative prior attitude groups differs significantly from the neutral group (means of 5.73 and 4.47, respectively, p < .05), while the comparison of positive (mean 5.67) and neutral groups approached significance (p < .10). The means for positive and negative groups did not differ significantly from one another. Viewers of the other test commercial who initially reported a strong favorable predisposition toward confronting their friends about drinking and driving tended to list more thoughts in the cognitive response task than did those with a weaker or neutral prior attitude, although the difference did not reach conventional levels of significance (means of 6.52 and 5.75, respectively, p < .10).
A significant main effect of prior attitude on negative thought production emerged among those responding to the drinking and driving ad \((p < .01)\). Those with positive prior attitudes have less of a propensity than the neutral attitude group to record negative thoughts \((\text{means of .48 and 1.28 for positive and neutral groups, respectively})\). Negative thoughts did not differ significantly among the three attitude groups associated with the Mobil 1 ad.

The pattern of results which occurred for total cognitive response output -- higher levels for those with weaker or neutral attitudes -- also holds for the number of cognitively oriented thoughts elicited. For the Mobil 1 ad, the positive and negative groups are comparable \((\text{means of 5.50 and 5.14, respectively, } p > .10)\). The neutral group mean of 3.90 falls significantly below that recorded for the positive group \((p < .05)\), while its slightly smaller distance from the negative group approaches the conventional significance level \((p < .10)\). Means associated with the drinking and driving ad are 5.67 and 4.82 for the positive and neutral groups, respectively \((p < .05)\).

Relative to the message/own thought distinction, the Mobil 1 ad yielded the highest levels of own thought production among viewers in the positive prior attitude group \((\text{means of 4.92, 3.38 and 4.32 for positive, neutral and negative groups, respectively})\). The overall effect was significant \((p < .05)\), as shown in table 3. The
conservative Scheffe test, however, failed to reveal significant differences between any of the groups, although the largest difference (between positive and neutral) approached significance (p < .10). No significant main effect of prior attitude on own thought production emerged among viewers of the drinking and driving ad, but those with a prior positive attitude listed significantly more message thoughts than did those in the neutral group (means of .44 and .11, respectively, p < .05).

On balance, then, one can infer that extreme prior attitudes result in a heightened level of cognitive response activity. This effect on total commercial-relevant thought production appears to stem primarily from a tendency among viewers with strong prior attitudes to generate more cognitively oriented message thoughts than do those with a weaker or neutral predisposition.

The presence/absence of an attention-engaging device yielded no main effects for either ad on total thought production. For the Mobil 1 ad, however, the accompanying beeps affected the balance of cognitively and affectively oriented responses. When the device was present, viewers generated significantly fewer cognitively oriented responses than when it was absent (means of 3.29 and 4.55, respectively, p < .01). While the device inhibited cognitively oriented responses, it enhanced the generation of affective responses (device present -- mean 1.36, absent
This evidence thus raises the possibility that the device serves to distract viewers rather than to facilitate message processing, although one must examine interaction effects before drawing inferences with any degree of confidence. For the drinking and driving ad, the sole main effect of the message-relevant attentional device was on negative thoughts, with more emerging when it was present (mean .82) than when it was absent (mean .43, p < .05).

Hypothesis 3: In the absence of an attention-engaging device, high-elaboration programming will result in the generation of fewer commercial-relevant cognitive responses than will segments low in elaboration; but in the presence of an attentional device, high- and low-elaboration program segments will generate the same level of commercial-relevant responses.

Interaction Effects. While the main effects addressed above are illuminating, the interactions are what one must assess to test hypothesis 3. Specifically, support for this hypothesis requires the number of thoughts listed to be significantly higher among subjects in the low-elaboration condition and lower for the high-elaboration group in the absence of an attention-engaging device, with minimal differences in cognitive response production arising when a device is employed.

Subjects who viewed the Mobil 1 ad in the absence of the beeps listed significantly fewer thoughts in the low-elaboration (mean 4.18) than in the high-elaboration condition (mean 5.71, p < .05). When the beeps preceded the
commercial, no significant difference in total thought production emerged between the subjects in the two program elaboration conditions. Furthermore, when program elaboration was high the commercial version which included the beeps elicited significantly fewer cognitive responses than did the same ad in the absence of the device ($p < .05$). Thus the irrelevant device appears to have inhibited commercial-relevant thought when program elaboration was high -- a result which challenges hypothesis 3. This interaction is depicted in figure 3.

The message-relevant attention-engaging device presented with the drinking and driving ad yielded a different pattern of results than that observed for the Mobil 1 commercial, and one which was more supportive of hypothesis 3. The program elaboration by attention device interaction on total thoughts emerged as significant ($p < .05$). Scheffe comparisons reveal that the presence of the crash scene at the beginning of the ad facilitated total cognitive response generation in the high-elaboration position (device present -- mean number of thoughts 7.00, device absent -- 5.88, $p < .05$). The device had no significant impact in the low-elaboration setting ($p > .10$). (See Figure 4.)

Thus the nature of the attention-engaging device appears to play a critical role in total thought production. Whereas the message-relevant device apparently serves as a
Figure 3: Total Cognitive Responses -- Mobil 1

[Graph showing the relationship between Total Thoughts and Program Elaboration, with a legend indicating "Attention Device Present" and "Attention Device Absent".]
Figure 4: Total Cognitive Responses -- Drinking and Driving

LEGEND

-- Attention Device Present

--- Attention Device Absent
catalyst for the generation of cognitive responses when program elaboration is high, the irrelevant device tends to suppress commercial-relevant thought in the same condition.

None of the experimental factors demonstrated a significant impact on the number of favorable or unfavorable thoughts listed in response to the Mobil 1 ad, either by way of main effects or interactions. Likewise, no main effects on positive thought production emerged as significant for the drinking and driving ad. The only significant effects on positive thoughts for the drinking and driving commercial are reflected in an interaction between the program elaboration and attention-engaging device factors (figure 5). Here the results are consistent with those described for total thoughts, with viewers in the high elaboration position generating more positive thoughts in the presence of the device than when it was absent (means of 5.00 and 3.96, respectively, p < .05). The difference in the low elaboration condition was in the opposite direction, but it only approached significance (p < .10). Thus the message-relevant attention-engaging device, in its enhancement of total cognitive response activity in the high-elaboration condition, appears to facilitate the generation of favorable thoughts. The only significant impact on negative thoughts surrounding the drinking and driving ad come by way of the prior attitude and attention device main effects discussed earlier.
Figure 5: Positive Thoughts -- Drinking and Driving

LEGEND

— Attention Device Present
— Attention Device Absent
A program elaboration by attention device interaction also affected the cognitive or affective orientation of viewer responses to both ads. For the Mobil 1 ad the interaction was significant (p < .01) for the number of both cognitively and affectively oriented responses elicited, as shown in figures 6 and 7, respectively. In the high-elaboration position, a Scheffe test reveals that fewer cognitively oriented responses emerged when the device was present (mean of 3.43) than when it was absent (mean 5.53, p < .01); means did not differ significantly in the low-elaboration condition. Thus the device's tendency to suppress total thought production when program elaboration is high is also reflected in the measure of cognitively oriented responses.

With respect to affectively oriented responses, the significant difference between attention device conditions occurred when program elaboration was low, not high; i.e., viewers in a state of low program elaboration listed more affective responses when the beeps preceded the commercial (mean 1.90) than when they were absent (mean 0.67, p < .01). This is particularly informative in view of the fact that total thought production did not differ significantly between the two attention-engaging device conditions when program elaboration was low. The implication is that in a low-elaboration program setting, the utilization of an irrelevant attentional device affects the nature rather than
Figure 6: Cognitively Oriented Responses -- Mobil 1
Figure 7: Affectively Oriented Responses -- Mobil 1
the amount of thought generated in response to a commercial; i.e., it induces a stronger affective orientation.

The number of cognitively oriented responses to the drinking and driving ad demonstrated no significant interaction effects, with results adequately explained by the main effects addressed earlier. Affectively oriented responses, in contrast, were affected by the program elaboration and attention device manipulations in an interactive fashion (p < .01, see Figure 8). As with total thought generation, in the high-elaboration condition more affective responses emerged in the presence of the device (mean 0.93) than in its absence (mean 0.31, p < .05). On this variable, however, a significant difference also appears when program elaboration is low, with the device reducing the elicitation of affectively oriented responses (mean 0.43) below the level which is observed when it is not employed (mean 1.06, p < .05).

The latter result contrasts markedly with that obtained for the Mobil 1 ad in the presence of its irrelevant attention-engaging device. Whereas the irrelevant device facilitates an affective thought orientation when program elaboration is low, the relevant device suppresses such responses. It appears that dramatically calling viewer attention to the specific informational content of the ad reduces the propensity to engage in affective processing, while arousing attention in a nonspecific manner heightens
LEGEND

--- Attention Device Present

--- Attention Device Absent

Figure 8: Affectively Oriented Responses -- Drinking and Driving
it. Whereas cognitive arousal may occur with both devices, perhaps in the first instance the relevant device provides a cognitive anchor which is lacking when the beeps are employed.

Significant three-way interactions (program elaboration by prior attitude by attention-engaging device) emerged for the number of message and own thoughts among viewers of the Mobil 1 ad (plotted in figures 9 and 10). With regard to message thoughts, a number of nonsignificant directional shifts occur between the various cells. The result that stands out, however, is the device’s significant enhancing effect on the generation of message thoughts among negatively inclined viewers in the low-elaboration position (mean of 5.0, relative to 1.0 and 0.90 for positive and neutral groups, respectively, as shown in figure 9; p < .05 for both comparisons).

Relative to the number of own thoughts, a discussion of the significant program elaboration by attention-engaging device interaction is omitted in deference to the higher order three-way interaction. The commercial version which included the attention-engaging device led those in the positive attitude group to generate more own thoughts in the low- than in the high-elaboration position (means of 6.0 and 3.3, respectively), a difference which approached significance (p < .10). The negative group, in contrast, generated more own thoughts when program elaboration was
LEGEND

- Positive Prior Attitude
- Neutral Prior Attitude
- Negative Prior Attitude

Figure 9: Message Thoughts -- Mobil 1
Figure 10: Own Thoughts -- Mobil 1
high (mean 4.8) than when it was low (mean 0.0, p < .05), as depicted in figure 10. Differences in own thought elicitation between attitudinal groups and program positions were not significant when the device was absent.

For the drinking and driving ad, prior attitude interacted significantly with program elaboration to affect the generation of message thoughts (p < .05). The two attitudinal groups listed a comparably low level of message thoughts when program elaboration was low (p < .10). An increase in elaboration had no effect on the neutral group (identical means -- 0.11 -- in both conditions). However, high program elaboration led those with a positive prior attitude to generate significantly more message thoughts (mean .63) than emerged in the low-elaboration conditions (mean 0.09, p< .05; see figure 11). Since total thoughts did not reflect such an interaction, the implication is that prior attitude affected the type, rather than the amount of thought. The high level of involvement associated with the drinking and driving issue may provide an adequate incentive and the level of cognitive arousal necessary for the generation of personal elaborations on the topic of the message (i.e., "own thoughts"), particularly among those with strong prior attitudes. If viewers with a positive attitude toward a highly involving issue are thus highly cognitively engaged, the addition of elaboration-inducing program content to the scenario may result in a state of
Figure 11: Message Thoughts I -- Drinking and Driving

LEGEND

— Positive Prior Attitude
— Neutral Prior Attitude
cognitive overload, which essentially distracts cognitive effort sufficiently to minimize such elaborative commercial processing and replace it with cognitive processes requiring fewer personal associations, such as simple message rehearsal.

Prior attitude interacted with the presence/absence of the attention-engaging device in affecting the generation of message thoughts among viewers of the drinking and driving commercial (p < .05). Those with weak/neutral predispositions listed fewer thoughts of this type when the device was present (mean 0.22) than in its absence (mean 0.80, p < .05), while the positive group responded essentially the same way across the two conditions (figure 12).

Summary. The expectation of the cognitive response model of television viewing, developed in the first chapter, that high elaboration programming reduces the overall level of commercial-relevant cognitive response activity, is rejected. However, evidence is cited which suggests that it affects the cognitive/affective orientation of the responses generated; i.e., high program elaboration results in a stronger cognitive focus than lower elaboration levels. Those with strong prior attitudes (positive or negative) toward the advertised product or issue demonstrated a higher level of commercial-relevant cognitive response activity than did neutral viewers. The hypothesis that the inclusion
Figure 12: Message Thoughts II -- Drinking and Driving

LEGEND

— Positive Prior Attitude

— Neutral Prior Attitude
of an attention-engaging device would facilitate cognitive response generation in the high- but not in the low-elaboration position met with mixed results: the irrelevant device associated with the Mobil 1 ad enhanced commercial-relevant cognitive activity in the low-elaboration position (contrary to the hypothesis), while the enhancing effect of the message-specific stimulus employed with the drinking and driving commercial was observed in the high-elaboration position (as hypothesized).

Furthermore, with respect to the Mobil 1 ad, the commercial-relevant cognitive responses encouraged by the beeps in the low-elaboration condition appear to be comprised disproportionately of message thoughts for those approaching the ad with a prior negative attitude (relative to the number observed among those with positive and neutral predispositions). For that attitudinal group, such an effect may prove beneficial, since own thoughts (the alternative to message thoughts) are likely to be unfavorable when prior attitude is negative.

An explanation for the thought-enhancing effect of the message-relevant stimulus in the high-elaboration condition is suggested by the model developed earlier. That is, the device reorients viewers' attention away from the cognitively arousing program content, focusing their thoughts on the topic of the commercial. The cognitive response suppression effect observed for the irrelevant
device when program elaboration is high does not conform as readily to the rationale developed in the model. Rather, it may occur because viewer attention is reoriented toward the device itself, rather than toward the commercial, with the consequence that the attentional stimulus serves as a distractor. Hence the relevance of an attentional device appears to play a critical role in its impact on commercial-relevant thought.

Recall

Instructions for the recall task asked subjects to write down everything they could remember about the test advertisement, including central informational elements and peripheral cues such as scenes and music. ANOVA results are thus reported for total recall, and then broken into separate categories for central and peripheral cue recall (table 5).

Main Effects. As with cognitive response activity, no significant difference emerged between the two program positions in terms of the total number of message elements correctly recalled for either commercial. But when the data are analyzed separately for central and peripheral cue recall, a significant difference emerges for the Mobil 1 ad. Viewers in the low program elaboration condition demonstrate better recall of central message elements than do those in the high-elaboration condition (mean numbers of central
Table 5

ANOVA of Recall

<table>
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<th>Central</th>
<th>Peripheral</th>
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<td>4.85**</td>
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<td>4.14**</td>
<td>2.55*</td>
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<td>0.22</td>
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<td>A X C</td>
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<td>0.47</td>
<td>0.09</td>
<td>2.94*</td>
</tr>
<tr>
<td>B X C</td>
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<td>1.22</td>
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<td>0.04</td>
</tr>
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<td>Residual</td>
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<table>
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<tr>
<td>Total</td>
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</tbody>
</table>

*p < .10.
**p < .05
The negative impact of high levels of program elaboration on the recall of central message elements in the Mobil 1 ad indicates that viewers may experience greater difficulty in recalling central message arguments when program elaboration is high than when it is low.

The drinking and driving ad yielded no significant main effect for program elaboration. This is not to suggest that program elaboration had no effect on recall of the drinking and driving ad. Rather, its effects are reflected in a significant interaction with the attention-engaging device factor, described in the interaction effects section.

A significant main effect of prior attitude on recall of central message elements is observed for the Mobil 1 ad \( p < .05 \). Viewers with a prior neutral attitude recalled significantly more central elements than did those with positive prior attitudes (means of 6.97 and 5.17, respectively, \( p < .05 \)). The difference between the neutral and negative (mean 6.41) groups was not shown to be significant in Scheffe comparisons.

This result is the opposite of that described earlier for own thought production. Thus a plausible explanation is that viewers in the positive prior attitude group, upon exposure to the ad, began to retrieve and rehearse relevant personal associations. Such cognitive activity could account for the increased number of own thoughts observed.
for that group, and may also have resulted in less attention to specific message details than occurred among subjects in the neutral and negative groups who reported fewer own thoughts. To the extent that increasing levels of own thoughts are a reflection of an inner-directed (topic-relevant experiences, attitudes, etc.) rather than an outer-directed (specific message content) attentional focus, it is not surprising to observe an inverse relationship between own thought generation and central message recall.

For the drinking and driving ad, no significant main effects emerged for prior attitude, nor did that factor play a role in any significant interaction effects. The lack of an impact of prior attitude on recall of the drinking and driving commercial may be attributable to a ceiling effect; i.e., student subjects in all prior attitude groups may have found the topic to be of sufficient interest to motivate them to process the information conveyed therein. This explanation is consistent with the significant difference in viewer involvement between the topics of the two experimental advertisements reported earlier.

The presence/absence of an attention-engaging device produced no significant main or interaction effects among viewers of the Mobil 1 ad. The message-relevant device employed with the drinking and driving ad, however, resulted in the recall of a significantly lower number of central message elements (mean 5.83) than arose in its absence (mean
Correspondingly, the presence of the device resulted in the recall of more peripheral cues (mean 3.29) than occurred when it was absent (mean 2.50, p < .05). Perhaps the device, by rendering the central message theme so clearly and immediately available, reduced viewers' perceived utility of attending to central message elements, thereby shifting attention to peripheral cues. Such a shift in attentional focus may also account for the observation of a greater number of negative thoughts in the presence of the device than in its absence.

Hypothesis 4: When an attentional device is absent, commercial content will be better recalled in low- than in high-elaboration segments; but in the presence of an attention-engaging device, recall will be comparable across program conditions.

Interaction Effects. The support of hypothesis 4 would require the emergence of a significant program elaboration by attentional device interaction with respect to recall. These interaction effects were observed for the drinking and driving ad, but not the Mobil 1 commercial. For the drinking and driving ad a program elaboration by attention-engaging device interaction emerged consistently across total and central recall measures (p < .05), but in a direction opposite to that which was hypothesized. The message-relevant attention-engaging device associated with the drinking and driving ad hindered total message recall when program elaboration was high (means of 8.37 and 10.38 for presence and absence of the device, respectively,
The difference in total recall between the two conditions in the low elaboration position was not significant. The same relationship is in evidence when the number of central message elements recalled is utilized as the dependent variable (means of 5.79 and 7.15 for presence and absence of the device, respectively, p < .05, figure 14). Again the difference was not significant in the low elaboration condition.

Thus the crash scene, which preceded the drinking and driving ad in conditions calling for an attentional device, engendered a higher level of peripheral cue recall, as noted in the earlier discussion of main effects. However, when program elaboration was high it resulted in less total and central recall than occurred in its absence. This finding, which is in marked contrast to that predicted by hypothesis 4, suggests that the device failed to refocus viewer attention on specific message details. Cognitive response results cited earlier showed the presence of the message-relevant attentional device to yield an increase in affectively oriented thoughts. Thus while the device facilitates commercial-relevant cognitive response activity, it apparently leads to affective responses to the message at the expense of careful attention to and cognitive rehearsal of informational details, resulting in lower central recall.

Summary. Recall measures failed to yield consistent results across the two commercials. However, the overall
Figure 13: Total Recall -- Drinking and Driving
Figure 14: Recall of Central Elements -- Drinking and Driving
pattern of results lends itself to an explanation not far removed from the theoretical underpinnings of the model proposed earlier. In the case of the Mobil 1 ad, the finding most relevant to the objectives of the present study is the main effect of program elaboration on the recall of central message elements. This result--superior recall when program elaboration is low--was expected in the absence of an attention-engaging device, since ongoing program-relevant thought is assumed to interfere with the processing of the commercial message. Apparently the irrelevant attention-engaging device was unable to overcome that processing deficit, thus accounting for the failure to observe the hypothesized interaction.

The skeletal hand/crash scene associated with the drinking and driving commercial, in comparison, was shown earlier to enhance message-relevant thought. Interestingly, it also is associated with reduced recall (total and central) when program elaboration is high, apparently because of its propensity to induce affective responses rather than a more cognitively oriented processing approach. Hence hypothesis 4 is not supported.

Attitude

Attitudinal effects were assessed in terms of both attitude toward the advertised product or issue and attitude toward the ad. For purposes of analysis, these variables
were represented by the mean response to the multiple-item measures described in the prior chapter. Table 6 contains the ANOVA results for the two measures with respect to both test commercials.

**Main Effects.** No significant program elaboration main effect emerged with respect to the attitude measures for either ad, though in both instances the effect on product/issue attitude approached significance ($p < .10$). Indeed, the main effect of program elaboration was the strongest result obtained for attitude toward Mobil 1, with viewers in the high-elaboration condition reporting a more favorable attitude than those who saw the ad in the setting characterized by low program elaboration (means of 1.79 and 1.47, respectively). One should be cautious about drawing inferences from this result, however, since the observed difference in attitudes between the two program elaboration conditions was not significant. None of the factors yielded significant main effects with respect to attitude toward the ad for the Mobil 1 commercial.

While a program elaboration effect of comparable magnitude to that described above, and also only approaching significance ($p < .10$), arose on the measure of subjects' attitude toward confronting their friends about their drinking and driving, that construct is clearly better explained through the examination of significant main and interaction effects. It comes as little surprise that the
### Table 6

**ANOVA of Attitude**

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<tr>
<th>Independent Variable</th>
<th>Degrees of Freedom</th>
<th>Attitude Toward Ad</th>
<th>Attitude Toward Ad</th>
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</thead>
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<td>0.53</td>
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<tr>
<td>Prior Attitude (B) 2</td>
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</tr>
<tr>
<td>Attention Device (C) 1</td>
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</tr>
<tr>
<td>A X B</td>
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</tr>
<tr>
<td>A X C</td>
<td>0.59</td>
<td>4.28**</td>
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<td>B X C</td>
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**Drinking and Driving**

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<th>Independent Variable</th>
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<th>Attitude Toward Ad</th>
</tr>
</thead>
<tbody>
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<td>3.54*</td>
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<td>Total</td>
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</table>

* *p < .10
** *p < .05
*** *p < .01
**** *p < .001
prior attitude blocking factor demonstrates a significant effect on post-exposure attitude, since both the dependent variable and the blocking factor which provided the criterion for sample partitioning are indicators of attitude. Thus those approaching the drinking and driving ad with a neutral predisposition toward a confrontation with their friends on the issue give a mean score of 1.45, while the corresponding value for those with a prior positive attitude is 2.77 (p < .01). The absence of such an effect on attitude toward the use of Mobil 1 is possibly a result of the lack of subject familiarity with the product prior to exposure to the commercial. Under such circumstances, one would not necessarily expect to observe a firm adherence to previously stated views in the presence of new information. Furthermore, the attitude addressed in the pretest instrument (regarding the use of generic versus branded motor oil) is different from the more specific measure employed after exposure to the commercial (regarding Mobil 1 directly).

The attention-engaging device factor had no significant effect on attitude toward Mobil 1 (p > .10). However, significant differences emerged with respect to the drinking and driving issue on the basis of whether or not the message-relevant device preceded the commercial message (means: device present 1.80, absent 3.24, on a seven-point bipolar scale coded -3 to +3, p < .05). Thus the commercial
appeared to have a more favorable impact on attitude in the absence of the device than in its presence. This is consistent with the earlier observation that more negative thoughts arose when the device was employed than when it was absent.

No significant main effects emerged for the measure of attitude toward the ad, although the program elaboration effect approached significance for the drinking and driving commercial ($p < .10$). In the case of the Mobil 1 commercial, a significant interaction, described in the following section, explains the impact of the factors on attitude toward the ad. Since the program elaboration effect, though not significant, is the strongest one associated with attitude toward the drinking and driving ad, means are presented here with a caution that this weak result may not warrant the drawing of broader inferences. Viewers in the high-elaboration condition expressed more positive attitudes toward the drinking and driving ad (mean 1.93) than did those in the low-elaboration condition (mean 1.68).

**Hypothesis 5:** Viewers with a prior positive attitude will report relatively higher attitude scores when program elaboration is low, or when elaboration is high and an attention-engaging device is present, and relatively lower scores when program elaboration is high and no attentional device is employed.
Hypothesis 6: Viewers with prior negative attitudes will demonstrate most favorable attitudes when program elaboration is high and no attention-engaging device is used, with less positive attitudes associated with all other conditions.

Interaction Effects. Support for hypotheses 5 and 6 would require a significant three-way interaction between program elaboration, attentional device and prior attitude. Hypothesis 5, which addresses expected results for subjects in the positive prior attitude group, is empirically testable for both commercials. As noted above, it predicts that viewers in that group who also fall within low-elaboration cells or within the high-elaboration/attentional device present cell will report significantly higher levels of product/issue attitude than will those in the high-elaboration/device absent condition. Hypothesis 6, which is stated in terms of the negative prior attitude group, is testable only for the Mobil 1 advertisement, since only positive and neutral groups existed among subjects viewing the drinking and driving commercial. It predicted significantly higher levels of attitude in the high-elaboration/attentional device absent condition than in the other three cells defined by the program elaboration and attentional device factors. Since the three-way interactions failed to attain significance for either advertisement (p > .10), hypotheses 5 and 6 are rejected.

However, two significant interactions offer some insight into the impact of the experimental and blocking
factors on viewer attitudes. A significant program elaboration by attention-engaging device interaction emerged relative to attitude toward the Mobil 1 ad \((p < .05)\). The device rendered attitudinal judgments (toward the advertisement) more favorable in the low-elaboration position (present, mean 1.94; absent, 1.68; \(p < .05\)). In the high elaboration condition the difference was of comparable magnitude in the opposite direction (present, mean 1.79; absent, 2.02), but only approached significance \((p < .10, \text{see figure 15})\).

Finally, a highly significant program elaboration by prior attitude interaction emerged for the attitude toward confronting one’s friends about drinking and driving \((p < .001, \text{see figure 16})\). Mean attitude scores were largely equivalent across the low-elaboration cells (positive prior attitude 0.64, neutral 0.67) and the high-elaboration/neutral prior attitude cell (.63). However, the prior positive attitude/high program elaboration group reported a significantly higher attitude score than was observed for any of the other three conditions (.74, \(p < .01\)). This corresponds to the cognitive response result that viewers in the positive prior attitude group and exposed to the test ad in the high-elaboration program setting listed more message thoughts than did subjects in the other conditions. The result is consistent with those of prior studies which suggest that message thoughts, while
LEGEND

--- Attention Device Present
--- Attention Device Absent

Figure 15: Attitude toward the Ad -- Mobil 1
LEGEND

--- Positive Prior Attitude

--- Neutral Prior Attitude

Figure 16: Attitude -- Drinking and Driving
not necessarily positive per se, tend to be more favorable than own thoughts, and hence to yield more favorable attitudinal results (Craig, Sternthal and Leavitt 1976; Kisielius and Sternthal 1986).

Summary. While the hypotheses regarding attitude were not supported, some interesting findings emerge with respect to the persuasive impact of the experimental variables. The irrelevant attention-engaging device enhanced attitude toward the ad in the low program elaboration condition. Viewed together with the finding that the device was associated with an increase in commercial-relevant thought in the low-elaboration condition, this result suggests that the device may boost the level of cognitive arousal in a setting otherwise characterized by minimal stimulation, which then has a positive effect on both commercial-relevant thought and attitude toward the ad. In this instance, however, the impact was not of sufficient strength to manifest itself in improved product attitude.

Alternatively, if the impact of stimulating a higher level of cognitive arousal is a shift in the type of cognitive responses generated, away from message thoughts and toward own thoughts, attitude may be enhanced by avoiding such stimulation. Thus the prior attitude by program elaboration interaction effect on attitude observed for the drinking and driving ad implies that the cognitive response model's underlying premise -- that program
elaboration affects persuasion by suppressing cognitive response activity -- realizes partial support in the data, even though the results failed to support the specific hypotheses.

Behavioral Intention

Hypothesis 7: Viewers with a prior positive attitude will report relatively higher behavioral intention scores when program elaboration is low or when elaboration is high and an attention-engaging device is present, and relatively lower scores when program elaboration is high and no attentional device is employed.

Hypothesis 8: Viewers whose prior attitude is negative will demonstrate higher levels of behavioral intention when program elaboration is high and no attention-engaging device is used, with lower behavioral intention scores associated with all other conditions.

Behavioral intention effects, measured via the single-item, seven-point scale described earlier, are shown in table 7. As with the attitudinal propositions, support for the behavioral intention hypotheses would require a three-way interaction, with specific significant between-cell differences predicted precisely as described for hypotheses 5 and 6.

The hypothesized interaction failed to emerge for either ad. Consequently hypotheses 7 and 8 are rejected. Only prior attitude was found to significantly affect behavioral intention with respect to confronting friends about their drinking and driving. The mean response among those with a positive prior attitude was 2.39, while for
Table 7
ANOVA of Behavioral Intention

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<th>Independent Variable</th>
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<th>F-Ratio</th>
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<th>F-Ratio</th>
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<td>100</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td></td>
<td>107</td>
<td></td>
</tr>
</tbody>
</table>

*p < .01

those more neutrally disposed toward the suggestion it was 1.43 (p < .01). No significant results emerged with respect to subjects' stated intention to use Mobil 1 motor oil. It therefore appears that the experimental manipulations did not affect behavioral intention.

RESPONSE TIME MODELING

The third experiment described in the prior chapter affords the opportunity to evaluate the dependent variables just addressed (cognitive response, recall, attitude and behavioral intention) as a function of measured (rather than manipulated) levels of elaboration. This is accomplished through multiple regression analysis, with secondary task
response time measures of viewer elaboration serving as independent variables. This phase of the research also facilitates the exploratory testing of post-commercial program elaboration effects and of the extent to which program elaboration approaches cognitive capacity limits, as discussed in the prior chapter.

The response time information, evaluated in tandem with that generated by the final research phase with its full factorial design, permits a broad assessment of the issues under investigation. The demonstration of common results across the two data sets should bespeak the validity of those findings, in view of the use of divergent methods and independent samples. The absence of data on the dependent variables in the low-elaboration commercial position in the response time phase of the research precludes a conclusive test of processing effects across a broad range of viewer elaboration levels. However, the sensitivity of the response time measure of cognitive activity permits the modeling of cognitive response, recall, attitude and intention as a function of program elaboration, albeit within a somewhat restricted range.

As stated in the prior chapter, subjects in this experiment viewed the test program with commercials inserted at low- and high-elaboration positions, and with computerized tones dubbed onto the tape. All subjects saw both commercials, but the order was counterbalanced across
experimental sessions. The button-pushing procedure employed in the earlier elaboration measurement experiment again served to generate response time data. In addition, subjects responded to the recall, cognitive response, attitude and behavioral intention measures discussed earlier. The design is simpler than that employed in the earlier study, however, in that it considers only program elaboration effects, with no measurement of prior attitude or manipulation of an attention-engaging device.

Table 8 contains the results of the multiple regression analysis. Each independent variable was expressed as a function of three response time indices: (1) the mean time of response to the five tones occurring in the thirty-second interval preceding the test commercial; (2) the mean time of response to the tones heard during the advertisement; and (3) the mean of the five response times immediately following the return to the program. Contained in the table are the standardized regression parameters associated with each of these three indicators of elaboration, along with the proportion of variance in the dependent variable which is explained by the response time measures ($R^2$).

**Cognitive Response Activity**

For the drinking and driving ad, response times demonstrated a strong relationship with the total number of commercial-relevant thoughts listed ($R^2=.65$), with
### Table 8
#### Response Time Regression Parameters

<table>
<thead>
<tr>
<th>Mobil 1 Drinking and Driving</th>
<th>Before</th>
<th>During</th>
<th>After</th>
<th>$R^2$</th>
<th>Before</th>
<th>During</th>
<th>After</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive Response Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.56*</td>
<td>.37</td>
<td>-.37</td>
<td>.28</td>
<td>.97****</td>
<td>-.96</td>
<td>.99**</td>
<td>.65</td>
</tr>
<tr>
<td>Positive</td>
<td>.67**</td>
<td>.53**</td>
<td>-.48</td>
<td>.46</td>
<td>.41</td>
<td>-1.39**</td>
<td>1.10**</td>
<td>.38</td>
</tr>
<tr>
<td>Neutral</td>
<td>-.02</td>
<td>-.21</td>
<td>.28</td>
<td>.08</td>
<td>.61</td>
<td>.05</td>
<td>-.08</td>
<td>.39</td>
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<tr>
<td>Negative</td>
<td>-.34</td>
<td>-.23</td>
<td>.09</td>
<td>.12</td>
<td>-.18</td>
<td>1.15***</td>
<td>-.28</td>
<td>.70</td>
</tr>
<tr>
<td>Cognitive</td>
<td>.71**</td>
<td>.40</td>
<td>-.33</td>
<td>.42</td>
<td>.65*</td>
<td>-.47*</td>
<td>.49</td>
<td>.30</td>
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<tr>
<td>Affective</td>
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<td>.05</td>
<td>-.28</td>
<td>1.17</td>
<td>.60*</td>
<td>-.95*</td>
<td>.96</td>
<td>.30</td>
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<td>Message</td>
<td>.41</td>
<td>.46*</td>
<td>-.78</td>
<td>.46</td>
<td>.54*</td>
<td>-.13</td>
<td>.29</td>
<td>.31</td>
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<tr>
<td>Own</td>
<td>.58**</td>
<td>.23</td>
<td>-.22</td>
<td>.27</td>
<td>.83***</td>
<td>-.74</td>
<td>.70</td>
<td>.44</td>
</tr>
<tr>
<td><strong>Recall Measures</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
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<td>1.45***</td>
<td>-1.02**</td>
<td>.62</td>
<td>.32</td>
<td>.15</td>
<td>.32</td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>-.92**</td>
<td>1.30</td>
<td>-.52</td>
<td>.51</td>
<td>.38</td>
<td>.40</td>
<td>-.12</td>
<td>.32</td>
</tr>
<tr>
<td>Periph.</td>
<td>-.50**</td>
<td>-.24</td>
<td>-.26</td>
<td>.48</td>
<td>-.18</td>
<td>-.05</td>
<td>.61</td>
<td>.33</td>
</tr>
<tr>
<td><strong>Persuasion Measures</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>-.32</td>
<td>1.03</td>
<td>-.73</td>
<td>.21</td>
<td>.81***</td>
<td>.38</td>
<td>-.04</td>
<td>.55</td>
</tr>
<tr>
<td>Intention</td>
<td>.12</td>
<td>-.57</td>
<td>.66</td>
<td>.12</td>
<td>.49</td>
<td>-.67</td>
<td>.24</td>
<td>.18</td>
</tr>
</tbody>
</table>

* $p < .10$
** $p < .05$
*** $p < .01$
**** $p < .001$
increasing pre-commercial response time resulting in a corresponding increase in total number of thoughts. Likewise, the relationship between pre-commercial response times and total cognitive response generation was positive for the Mobil 1 ad, although the total variance accounted for by the three response time indices is lower ($R^2 = .28$) and the pre-commercial parameter only approaches significance ($p < .10$). While the pre-commercial parameter failed to achieve significance for total thoughts, it was significant in the models of positive, cognitively oriented and own thoughts associated with the Mobil 1 ad ($p < .05$).

The finding of a positive relationship between total cognitive response generation and program-relevant thought goes beyond the results of the experiment discussed in the prior section, which failed to demonstrate a significant main effect of program elaboration on the total number of thoughts listed. It suggests that program elaboration may enhance, rather than inhibit, commercial-relevant thought, presumably by increasing cognitive arousal. The significant positive regression coefficient associated with cognitively oriented thoughts is consistent with results obtained in the other experiment, confirming the notion that viewers engaged in extensive program elaboration adopt a more cognitively oriented approach to the processing of commercial messages than do those who are less engaged in program-relevant thought.
Recall

While subjects may have been motivated to think about the topic of the ad, a negative relationship emerged between pre-commercial response time and recall measures for the Mobil 1 commercial, with response times accounting for 62 percent of the variance in the total number of message elements recalled. (For the drinking and driving ad, variance accounted for was low and parameters were not significant.) Recall results are somewhat stronger than, but directionally consistent with, those obtained in the other study (where the only significant main effect of program elaboration was on recall of central message elements in the Mobil 1 ad).

Regression results imply that, in the case of the Mobil 1 ad, as program elaboration increased, more thoughts tended to be "own thoughts" or "reactions" rather than direct rehearsal of message content. This inhibited viewers' ability to store and subsequently retrieve message details.

Attitude and Behavioral Intention

In the absence of information on the prior attitude of subjects involved in this research phase, it is difficult to interpret regression results on attitude and behavioral intention as either supporting or challenging the hypotheses relevant to those variables, since they predict an
interaction of program elaboration with prior attitude. However, it is noteworthy that response times explained 55 percent of the variance in viewer attitude toward confronting friends about drinking and driving. The only significant response time parameter is associated with the tones heard prior to the commercial break. No parameters in the behavioral intention models were significant for either advertisement.

The inverse relationship between pre-commercial response times and viewers' attitudes suggests that increasing amounts of pre-commercial program elaboration resulted in a less positive attitude toward the behavior advocated by the ad. However, this occurred in spite of the direct relationship between response times and cognitive response activity cited earlier. In other words, high levels of program elaboration induced extensive thinking about the ad, but had a detrimental effect on attitude.

The explanation for this result appears to lie in the type of thoughts generated. Responses generated in a state of high program elaboration were largely "own" thoughts, which may be less positive than message thoughts. Response time parameters in the behavioral intention models were not significant for either advertisement. Furthermore, to the extent that an increase in program elaboration represents a heightened level of involvement, one might expect viewers in
such a state to respond more critically (negatively) to a commercial message.

Post-Commercial Program Elaboration

Though tangential to the objectives of the present research, which addresses the effect of pre-commercial program elaboration, an examination of the pattern of results obtained for post-commercial response times is appropriate as a potential precursor to later theory development and empirical work in that area. Ultimately it would be desirable to isolate specific cognitive processes which may be differentially affected by pre- and post-commercial elaboration, such as attention and rehearsal.

Post-commercial response time results vary markedly across the two advertisements. Whereas increasing amounts of cognitive activity (as measured by response times) were generally associated with the listing of fewer commercial-relevant thoughts in the subsequent cognitive response task among Mobil 1 ad viewers, for those who saw the drinking and driving ad an opposite result emerged -- i.e., longer response times were associated with more responses. The presence of such a discrepancy between the commercials may reflect the operation of some features unique to each ad. The problem of tracing the source of such differences is compounded in this instance by the inability of the response time measure in the post-commercial position to
differentiate between program elaboration and commercial-relevant thought.

While the information gathered was inadequate to assess this discrepancy with confidence, two conclusions emerge: (1) the total program environment, not just that which precedes the advertisement, seems to have an impact on viewer processing of the commercial; and (2) pre-commercial and post-commercial program elaboration are shown to be distinct phenomena, which may induce consonant or disparate effects on the processing of commercial messages.

Cognitive Capacity Utilization

A comparison of viewer response times before and during the commercial provides an indicator of whether processing intensity remains stable (no difference in response times), as one would expect if the demands of program elaboration consume most available cognitive resources, or increases (longer response times during than before the commercial) as a result of the use of remaining capacity to process advertising content in addition to the program. Pooled results from the viewers of both ads reveal that the mean time of response to the tone following the introduction of the commercial in the high-elaboration position (.842) was not significantly different from that associated with the prior tone (.918). In contrast, a significant difference emerged between pre-commercial response time in the low
program-elaboration position (.494) and that associated with the first tone heard during the commercial (.594) in that location (t=2.6, p < .05). Thus extensive elaboration of program content appears to leave minimal cognitive resources available for an increase in overall processing levels when a commercial appears, whereas such an increase is possible when program elaboration is low.

ALTERNATIVE MEDIATORS OF PROGRAM CONTEXT EFFECTS

Observed effects of the experimental stimuli on the processing of commercial content could conceivably be attributable to mechanisms other than those proposed. To establish whether the results may be better explained by a noncognitive mechanism -- either the direct transfer of affect from the program to the advertised product or issue, or program-commercial mood congruence -- the foregoing analyses were repeated, using attitude toward the program and program-induced mood states as covariates. If the effects emerging from the experiment are a result of a noncognitive transfer of mood or affect, rather than the level of cognitive processing, covarying on the former variables should attenuate the results described earlier. Mean responses to the items on the program mood scale and scores generated by the single-item program attitude measure were thus employed as covariates.
Tables 9 to 12 compare the F-Ratios obtained earlier with those generated when attitude toward the program and program-induced mood states are employed as covariates. Only those effects (main and interaction) which emerged as significant in the prior analysis are considered, in an attempt to assess whether the covariates moderate the results attributed earlier to the experimental factors. Since the inclusion of the covariates failed to raise any previously non-significant effects to a conventional significance level (p < .05), test statistics associated with those effects are omitted from the table.

The results for the cognitive response analysis are shown in tables 9 and 10 for the Mobil 1 and drinking and driving ads, respectively. Neither of the noncognitive factors emerged as significant with respect to any of the cognitive response variables. The only significant result which was moderated by the inclusion of the covariates was the main effect of prior attitude on total thought production for the Mobil 1 ad. And even for total thought, the stronger and more theoretically relevant finding of a significant interaction between program elaboration and attention-engaging device remained. Clearly the noncognitive factors cannot account for the elaboration-based cognitive response results reported earlier.

Recall results with and without covariates are contrasted in Table 11. The main effect of the attention-
Table 9

Covariation Effects -- Cognitive Responses -- Mobil 1

F-Ratios for Dependent Variables

<table>
<thead>
<tr>
<th>Covariates</th>
<th>Dependent Variable</th>
<th>Prior Results</th>
<th>Program Attitude</th>
<th>Program Mood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Thoughts</td>
<td>Prior Attitude</td>
<td>4.66***</td>
<td>2.85****</td>
<td>2.24***</td>
</tr>
<tr>
<td></td>
<td>A X C</td>
<td>12.50**</td>
<td>13.81****</td>
<td>12.11***</td>
</tr>
<tr>
<td>Cognitively Oriented</td>
<td>Program Elaboration</td>
<td>4.47**</td>
<td>4.57**</td>
<td>4.74**</td>
</tr>
<tr>
<td></td>
<td>Prior Attitude</td>
<td>4.24**</td>
<td>4.87***</td>
<td>3.82**</td>
</tr>
<tr>
<td></td>
<td>Attention Device</td>
<td>9.14***</td>
<td>6.12**</td>
<td>9.27***</td>
</tr>
<tr>
<td></td>
<td>A X C</td>
<td>11.41***</td>
<td>12.76***</td>
<td>11.15***</td>
</tr>
<tr>
<td>Affectively Oriented</td>
<td>Attention Device</td>
<td>5.19**</td>
<td>6.06**</td>
<td>5.93**</td>
</tr>
<tr>
<td></td>
<td>A X C</td>
<td>10.27**</td>
<td>11.73***</td>
<td>11.92***</td>
</tr>
<tr>
<td>Message Thoughts</td>
<td>A X B X C</td>
<td>3.65**</td>
<td>3.60**</td>
<td>3.23**</td>
</tr>
<tr>
<td>Own Thoughts</td>
<td>Prior Attitude</td>
<td>3.96**</td>
<td>4.74**</td>
<td>4.11**</td>
</tr>
<tr>
<td></td>
<td>A X C</td>
<td>12.02***</td>
<td>12.24***</td>
<td>11.76***</td>
</tr>
<tr>
<td></td>
<td>A X B X C</td>
<td>4.09**</td>
<td>4.24**</td>
<td>3.80**</td>
</tr>
</tbody>
</table>

* p < .10
** p < .05
*** p < .01
**** p < .001

A = Program Elaboration
B = Prior Attitude
C = Attentional Device
Table 10
Covariation Effects -- Cognitive Responses
Drinking and Driving
F-Ratios for Dependent Variables

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Prior Results</th>
<th>Program Attitude</th>
<th>Program Mood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitively Oriented</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Elaboration</td>
<td>6.22**</td>
<td>5.98**</td>
<td>5.98**</td>
</tr>
<tr>
<td>Prior Attitude</td>
<td>4.44**</td>
<td>4.49**</td>
<td>4.48**</td>
</tr>
<tr>
<td>Affectively Oriented</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Elaboration</td>
<td>5.19**</td>
<td>4.58**</td>
<td>5.09**</td>
</tr>
<tr>
<td>A X C</td>
<td>10.83***</td>
<td>11.59***</td>
<td>11.75***</td>
</tr>
<tr>
<td>Message Thoughts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Elaboration</td>
<td>7.30***</td>
<td>12.33***</td>
<td>13.10***</td>
</tr>
<tr>
<td>Prior Attitude</td>
<td>5.26**</td>
<td>6.80**</td>
<td>6.07**</td>
</tr>
<tr>
<td>A X B</td>
<td>4.13**</td>
<td>4.07**</td>
<td>4.49**</td>
</tr>
<tr>
<td>B X C</td>
<td>4.13**</td>
<td>3.51*</td>
<td>4.10**</td>
</tr>
</tbody>
</table>

*p < .10

**p < .05

***p < .01

A = Program Elaboration
B = Prior Attitude
C = Attentional Device
## Table 12

**Covariation Effects -- Recall**

F-Ratios for Dependent Variables

<table>
<thead>
<tr>
<th>Covariates</th>
<th>Dependent Variable</th>
<th>Prior Results</th>
<th>Program Attitude</th>
<th>Program Mood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Independent Var.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOBIL 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Central Elements</strong></td>
<td>Program Elaboration</td>
<td>4.85**</td>
<td>4.30**</td>
<td>4.82**</td>
</tr>
<tr>
<td></td>
<td>Prior Attitude</td>
<td>4.14**</td>
<td>3.67**</td>
<td>3.91**</td>
</tr>
<tr>
<td><strong>DRINKING AND DRIVING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Recall</td>
<td>A X C</td>
<td>4.27**</td>
<td>4.22**</td>
<td>3.99**</td>
</tr>
<tr>
<td><strong>Central Elements</strong></td>
<td>Attentional Device</td>
<td>4.68**</td>
<td>4.61**</td>
<td>4.84**</td>
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<tr>
<td><strong>Peripheral Cues</strong></td>
<td>Attentional Device</td>
<td>4.04**</td>
<td>3.82*</td>
<td>3.38*</td>
</tr>
</tbody>
</table>

* *p < .10  
** **p < .05

A = Program Elaboration  
B = Prior Attitude  
C = Attentional Device
engaging device on the recall of peripheral cues in the drinking and driving ad drops slightly below the .05 significance level when the noncognitive variables are employed as covariates. However, the difference in F-ratios and associated significance levels is small, and the effect still approaches significance \( p < .07 \). As is the case for cognitive response activity, the recall results described earlier conform to an explanation based on cognitive elaboration.

Table 12 contains results for the attitudinal and intention variables. Again, the introduction of the noncognitive factors fails to attenuate the results described earlier. In view of these consistent findings, it is concluded that the results obtained are not dependent on program mood or attitude toward the program.

**MEASUREMENT OF ELABORATION**

While the objectives of this study are theoretical rather than methodological, the framework employed in the response-time stage affords an opportunity to assess alternative methods of measuring cognitive elaboration. In addition to the response time and cognitive response measures discussed earlier, self-report items were included in the instrument to facilitate such a comparison. Subjects expressed their level of agreement with two statements, referred to hereafter as A and B: (A) "I found myself
### Table 12

**Covariation Effects -- Attitude and Behavioral Intention**

**F-Ratios for Dependent Variables**

<table>
<thead>
<tr>
<th>Covariates</th>
<th>Dependent Variable</th>
<th>Prior Results</th>
<th>Program Attitude</th>
<th>Program Mood</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOBIL 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attitude Toward Ad</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A X C</td>
<td>4.28**</td>
<td>5.69**</td>
<td>4.06**</td>
<td></td>
</tr>
<tr>
<td>DRINKING AND DRIVING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attitude</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Attitude</td>
<td>33.61****</td>
<td>33.49****</td>
<td>31.25****</td>
<td></td>
</tr>
<tr>
<td>Attentional Device</td>
<td>4.36**</td>
<td>4.32**</td>
<td>5.29**</td>
<td></td>
</tr>
<tr>
<td>A X B</td>
<td>14.94****</td>
<td>15.38****</td>
<td>14.41****</td>
<td></td>
</tr>
<tr>
<td><strong>Behavioral Intention</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Attitude</td>
<td>17.16***</td>
<td>17.49****</td>
<td>16.03****</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05  
***p < .01  
****p < .001

A = Program Elaboration  
B = Prior Attitude  
C = Attentional Device
thinking about the action in the program during some of the
commercial time," and (B) "The action in the program
distracted me from thinking about the commercials."

Correlational analysis is reported to assess the
relative magnitude and strength of the relationship of two
types of program elaboration measures -- self-report and
response times -- with the other process and outcome
variables utilized in this study. These results are
depicted in table 13. Response time measures included in
the table are the response to the tone immediately prior to
the commercial (RT1) and the mean response time for the
tones heard during the 30-second interval preceding the
advertisement (RT2).

The self-report measures yielded weak and primarily
nonsignificant correlations with the process and outcome
measures relative to the Mobil 1 ad, with stronger and
significant results emerging for the drinking and driving
commercial. However, the response time measures give
results of a consistently higher magnitude and level of
significance for both ads. Indeed, when response times are
employed as the measure of program elaboration, that
variable emerges as the dominant mediator of each of the
dependent constructs except behavioral intention.

The utilization of response times as a measure of
program elaboration thus results in higher correlations for
that construct with the dependent variables than are
Table 13

Correlation Coefficients -- Program Elaboration Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Self-Report A</th>
<th>B</th>
<th>Response Time RT1</th>
<th>RT2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MOBIL 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cognitive Responses</td>
<td>-.12</td>
<td>.00</td>
<td>.55**</td>
<td>.31</td>
</tr>
<tr>
<td>Positive Thoughts</td>
<td>-.23</td>
<td>-.13</td>
<td>.56**</td>
<td>.01</td>
</tr>
<tr>
<td>Negative Thoughts</td>
<td>.11</td>
<td>.17</td>
<td>-.24**</td>
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*p < .10  
**p < .05  
***p < .01  
****p < .001
associated with the self-report elaboration measures. Furthermore, the two types of measures yield significant coefficients in opposite directions for some variables. For the drinking and driving ad, total thoughts, positive thoughts, cognitively and affectively oriented responses, and message thoughts all correlated positively with response time indices and negatively with scores derived from the self-report measures. Where the results differ, those associated with the response time measures are consistent with the findings reported earlier in the chapter, whereas those derived from the self-report measures are not. For example, results from two experiments confirm the existence of a positive relationship between program elaboration and cognitively oriented responses, not a negative one as the self-report measures would imply. This unexpected observation casts some doubt on the validity of the self-report items as measures of program elaboration. That doubt is heightened when one considers the correlations between the self-report and response time measures (ranging in absolute value from .01 to .32 and all nonsignificant).

To further assess this relationship, a t-test was conducted to ascertain whether viewers in the high-elaboration conditions gave higher responses on the self-report scales than those in the low-elaboration groups. For the item assessing whether viewers thought about the program during the commercial time, responses in the high- and low-
elaboration conditions were virtually identical (means of 3.30 and 3.32, respectively), and the test statistic was obviously nonsignificant. A comparable result emerged for the other measure (stated in terms of the program's ability to distract the viewer from thinking about the commercial), with means in the two conditions of 2.97 and 2.90).

The clear implication is that the self-report items are inadequate as measures of program elaboration. This result is not entirely surprising, given the complexity of the availability and allocation of cognitive resources. The response time methodology appears to be more sensitive and better suited to the measurement of elaboration than the self-report approach.

SUMMARY

In summary, the experimental data yielded partial support for the proposed model and the hypotheses derived therefrom. The experiments confirmed that viewers engage in varying, and sometimes relatively intense, amounts of program elaboration as they watch television programs. The anticipated decrement in commercial recall in high elaboration conditions obtained partial support, while the impact of attention-engaging devices varied substantially between message-relevant and -irrelevant devices. Cognition appears to mediate observed context effects on recall and attitude, even though the results were not entirely
consistent with the hypotheses and the model from which they were derived. Rather than reduced attention and commercial-relevant thought accounting for decrements in recall when program elaboration is high, the types of thought elicited provide an explanation which is consistent with observed results. As elaboration increases, message thoughts become less prevalent, replaced by own thoughts. While both types of thoughts are relevant to the topic of the ad, the latter tend to depart from the specific message details which would facilitate accurate message recall.

Finally, clear advantages emerged for the use of the secondary task approach to elaboration measurement. Relative to the self-report measures employed in this study, it offered superior accuracy and sensitivity.
CHAPTER VI

IMPLICATIONS AND CONCLUSIONS

This study set out to clarify a number of unresolved issues relative to the impact of viewer elaboration of television programming on the processing of commercial messages. This chapter places the results reported earlier within a theoretical framework and assesses the degree to which the research has attained the objectives set forth in the introductory chapter. Also addressed are managerial implications and limitations of the present study. Finally, some directions for future research are elucidated.

IMPLICATIONS

Model Reassessment

From the results reported in chapter 5, it is clear that tests of the research hypotheses met with mixed results. While some of the hypotheses, and hence some elements of the model from which they were derived, obtained support, others faced mixed or even directly contradictory evidence. On the basis of these results, a reassessment of the model is in order.
The modeled relationship gaining the most consistent support is that of program elaboration and commercial recall, with low levels of elaboration associated with high recall. Even this relationship does not consistently emerge as a direct effect on total recall, but more often as the enhancement of the recall of central message elements relative to peripheral cues.

The impact of an attention-engaging device is not observed exclusively in high elaboration conditions, as implied by the model. Furthermore, substantial differences in attention-engaging device effects arise, depending on whether or not the device employed is directly relevant to the message.

The anticipated consistency in total cognitive response activity and commercial recall is challenged, with conditions facilitating thought generation tending to hinder recall, and vice versa. The explanation for this result appears to be as much in the nature as in the amount of cognitive responses generated.

Finally, direct effects on persuasion proved to be elusive. The treatment factors yielded few significant effects on attitude and none on behavioral intention.

On the basis of the information gleaned from this study, a revision of the original model would seem appropriate. Figure 17 contains a cognitive arousal model of commercial processing, which represents an attempt to
Figure 17: Cognitive Arousal Model of Commercial Processing
place the results within a more compatible theoretical framework.

Cognitive Arousal Model

The revised model differs in several important respects from the model set forth in chapter 1. First, instead of having a direct effect on commercial-relevant cognitive response activity, program elaboration is viewed as one of a variety of antecedents to cognitive arousal, including involvement in the product or issue, the presence or absence of an attention-engaging device, and, when such a device is employed, its relevance or irrelevance to the commercial message. The viewer’s cognitive state -- i.e., whether s/he is cognitively passive, active or distracted -- affects cognitive response activity. Second, the model depicts program elaboration and the other antecedents of cognitive arousal as affecting the nature, as well as the amount, of commercial-relevant thought. A third model alteration is the separation of cognitive response and recall effects, and the shift in focus from the total amount of commercial recall to the types of message elements retained in memory. Finally, in view of the largely nonsignificant results of this research with respect to attitude and behavioral intention, those variables are deleted from the revised model.
A more thorough discussion of the proposed model relationship follows. The first portion of the model to be considered relates to the cognitive states, as defined by variance in arousal levels which are characteristic of different television viewing situations. These range from passivity to activity, and under certain circumstances to distraction. A consideration of some antecedents of cognitive arousal in a television viewing context follows, including product involvement, program involvement and attention-engaging devices. Also addressed is the way in which these factors operate, both in isolation and interacting with one another, to induce different cognitive states. The impact of varying cognitive states on commercial-relevant cognitive response activity is then discussed, followed by a consideration of how thinking about an advertisement mediates message recall. Thereafter, significant effects reported in the prior chapter are cited to illustrate and support the proposed model relationships.

Cognitive States. An individual’s cognitive state varies as a function of a number of internal and external determinants. That such variance in cognitive arousal is as relevant to television viewing as it is to other areas of human activity is demonstrated by the widely varying levels of program elaboration observed via the secondary task response time measures employed in this study. A viewer’s level of arousal at the time program action stops and a
commercial begins provides the cognitive environment within which the advertisement is to be processed. Arousal may be low -- referred to in the model as a passive cognitive state -- in which case minimal thought occurs. Alternatively, viewers may be in an active cognitive state, characterized by high levels of thought. The level of arousal may become sufficiently intense to interfere with the viewer's ability to direct cognitive resources at specified stimuli with precision. That is, a viewer confronted with multiple unrelated arousing stimuli may be unable to rapidly and efficiently engage in such cognitive operations as information rehearsal or attentional shifts -- a state identified in this model as cognitive distraction.

Antecedents of Cognitive Arousal. A variety of factors may give rise to the cognitive states identified above. Particularly germane to the level of cognitive arousal associated with the viewing of a television commercial are the three variables represented in the model: (1) product involvement -- the perceived personal relevance of the advertised product or issue to the viewer; (2) program involvement -- the extent to which program content engages a viewer's attention and interest, and hence induces elaboration; and (3) attention-engaging devices -- whether they are present or absent and whether they are relevant to the commercial (reinforcing its dominant theme) or irrelevant (conceptually unrelated).
Involvement in the advertised product or issue may arise for a variety of reasons -- e.g., prior personal experience, the anticipation of future commercial-relevant behavior, or an unsatisfied need or want which has placed the viewer in a state of problem recognition. Whatever its source, recognition that the message relates to a product or issue of personal relevance to the viewer should render relevant associations in memory readily accessible to the viewer, stimulating a high level of cognitive arousal. Such associations are less likely to surface when involvement in the product or issue is low, thereby leaving the viewer in a more passive cognitive state. In the case of the advertisements employed in this study, the issue of confronting one’s friends about their drinking and driving behavior elicited significantly higher responses on the self-report involvement measure than did the use of Mobil 1 motor oil. This implies that the former ad may have had a tendency to induce a higher level of cognitive arousal, independent of experimental manipulations, than did the latter.

Program involvement is relevant to a viewer’s cognitive state, since it affects the amount of program elaboration -- a major focus of this study. Thus a high level of program involvement may be expected to induce a high level of thought which, while it is focused on program action rather than advertisement content at the time the commercial
begins, leaves the viewer in a heightened state of cognitive arousal. Low program involvement, by contrast, may be expected to stimulate less program-relevant thought, with a stronger likelihood that the advertiser will find the viewer in a cognitively passive state. The successful manipulation of program-elaboration levels in this study established a basis for the emergence of such program involvement effects on viewers' cognitive states.

A novel and arresting stimulus positioned at the beginning of or immediately prior to a commercial, in addition to reorienting viewer attention, may induce some stimulus-relevant thought. Thus an individual whose prior cognitive state was one of passivity may begin to elaborate upon, or to question the purpose of, the dramatic change in the televised image. Such thoughts, directed toward the attention-engaging device, may increase the viewer's overall level of cognitive arousal.

The absence (or low level) of these three mediators of arousal provide a television viewing environment conducive to cognitive passivity. The presence (or high level) of any one of the three variables -- product involvement, program involvement, or an attention-engaging device -- may stimulate thought sufficiently to leave the viewer in a cognitively active state as commercial exposure occurs. However, two or more of these conditions, such as high product involvement and high program involvement, may
operate in combination with one another. This creates a situation in which multiple inducers of cognitive activity, each with a somewhat different focus (i.e., directing viewers' thoughts toward the advertised product or issue, the program, or the attentional device), compete for limited cognitive resources. The result may be a state of cognitive distraction, a situation in which the demands of the processing task may exceed cognitive capacity.

It is at this stage of the model that the relevance or irrelevance of an attention-engaging device is depicted as influencing whether viewers' cognitive state becomes one of activity or distraction. A viewer whose high product involvement encourages commercial-relevant thought, at the same time that high program involvement encourages the elaboration of program content, is in a situation conducive to cognitive distraction. If an irrelevant attention-engaging device stimulates further curiosity about a third stimulus, apparently unrelated to either program or commercial content, the probability of distraction is strengthened. Alternatively, a message-relevant device which emphasizes the dominant theme of the commercial, at the same time that it attracts viewer attention, may serve to simplify rather than to complicate the viewer's information processing task, thereby reducing the likelihood of cognitive distraction.
The cognitive state antecedents described above are clearly not the only determinants of arousal, but they represent a set of variables which is commonly applicable to the processing of television commercials. Other variables which have been shown to demonstrate a positive relationship with cognitive arousal include the need for cognition (Cacioppo and Petty 1982, Lord 1985) and situational influences inducing high levels of idiosyncratic thought (unrelated to the television program or commercial content). In a research setting, experimentally induced response involvement may likewise result in an increase in cognitive arousal.

Cognitive Response Activity. The cognitive state of a television viewer appears to influence commercial-relevant cognitive response activity. Television is largely an entertainment medium. As any advertiser recognizes, a consumer's primary purpose in television viewing is not to learn about products by carefully processing commercial information. Thus Howard (1977) notes that viewers whose program involvement is low passively watch commercials as part of the entertainment. Within the framework of the proposed model, low program involvement, if unattenuated by other potential antecedents of arousal, would leave the viewer in a passive cognitive state. Viewed from the perspective of the measures employed in this study, Howard's theorizing seems to predict that low program elaboration
should be associated with the production of relatively few commercial-relevant cognitive responses. This prediction, though contradictory to the model developed in the introductory chapter, receives support from the results of this study. For both ads, either by way of a main effect of program elaboration or an interaction of that factor with the attention-engaging device, mean levels of cognitive response production associated with low program elaboration conditions emerged at relatively low levels.

Alternatively, the model projects that television viewers in a cognitively active (but not distracted) state, induced either through high product involvement, program involvement, or exposure to an attention-engaging device, will demonstrate relatively higher levels of cognitive response activity. This element of the model also finds support in the results of this study, with high levels of commercial-relevant thought production emerging under the conditions described above as leading to a state of cognitive activity -- e.g., low product involvement, high program involvement and no attention-engaging device (Mobil 1), and high product involvement combined with high program elaboration, with a message-relevant attentional device (drinking and driving).

As cognitive distraction occurs, however, commercial-relevant cognitive response levels are expected to drop below those observed in cognitively active states. A
prediction of the model, then, is that a combination of the antecedents of cognitive arousal identified earlier, attracting viewer thought in a variety of directions, renders viewers less able to purposely allocate cognitive resources to the generation of commercial-relevant thought. Consistent with this expectation, experimental results revealed that subjects exposed to an advertisement in a high-elaboration program position generated significantly more commercial-relevant thoughts in the absence of an irrelevant device than in its presence. Whereas high program elaboration, operating in isolation from other antecedents of cognitive arousal, placed viewers in a state of cognitive activity conducive to the generation of commercial-relevant thought, the inclusion of an irrelevant attention-engaging device appears to have attenuated the gains in thought production occurring in the device’s absence.

Additionally, the nature of the thoughts generated appears to vary as a function of the viewer’s cognitive state. The relatively few commercial-relevant cognitive responses emerging in passive and distracted states reflect a stronger tendency toward message thoughts, moderating the dominance of own thought production which generally prevailed in this study. This is because own thoughts result from the association of stimulus details with pertinent information, images or impressions stored in long-
term memory. Message thoughts, however, may arise from the relatively simpler activity of cognitive rehearsal of message content. Simple cognitive operations can be executed by viewers in a relatively passive state, but a heightened level of arousal appears to promote more complex processing. Thus in the present study the greatest elicitation of message thoughts arose under conditions of cognitive passivity (low involvement as reflected in a neutral prior attitude, attentional device absent) and distraction (high involvement, high program elaboration), while a state of cognitive activity (high issue involvement complemented by the presence of a message-relevant attentional device, at a low level of program elaboration) facilitated own thought production.

Recall. The substantial alteration in the modeling of the relationship between cognitive response activity and recall reflects the emergence of a previously unanticipated pattern of results for the two variables. While some inconsistent results emerged for total recall, a more consistent pattern of significant effects emerged with respect to the nature of the message elements recalled -- i.e., central message elements or peripheral cues. Subjects demonstrated highest recall of central message elements in cognitively passive (low product involvement, low program elaboration) or distracted (high issue involvement, high program elaboration) states.
The types of thoughts generated in varying cognitive states appear to mediate the types of message elements recalled. The listing of message thoughts in a post-exposure cognitive response task implies that viewers have engaged to some extent in the rehearsal of message content. It is not surprising, then, that a relatively high level of central recall emerges among viewers placed in states compatible with the generation of message thoughts. Alternatively, own thoughts represent the retrieval of personal experiences, associations, and images, and may well interfere with the rehearsal of an ad's specific informational details. As central message elements face such interference from the own thoughts of cognitively active viewers, peripheral cues may be more likely to intrude upon those reflections and enter long-term memory.

Illustrations of Modeled Relationships. The cognitive arousal model of television viewing accommodates with relative parsimony most of the significant results obtained in this study. An examination of a few of those findings as they relate to the model is appropriate as an illustration of its explanatory power.

In view of the low level of product involvement reported with respect to Mobil 1 motor oil, the model would predict that viewers, exposed to an advertisement for that product in a low elaboration program position and in the absence of an attention-engaging device, would remain in a
state of cognitive passivity characterized by low levels of commercial-relevant thought. By contrast, either an increase in program elaboration or the inclusion of the irrelevant attention-engaging device should induce a state of cognitive activity, with a consequence of high levels of commercial-relevant thought. A combination of program elaboration and an irrelevant attentional device, however, should lead to cognitive distraction, resulting in a low level of cognitive response activity. The interaction of program elaboration and attention-engaging device factors with respect to total thought generation for the Mobil 1 ad, as depicted in figure 3 on page 160, conforms to each of these expectations. Likewise, as suggested by the model, recall of central message elements is higher in this low product-involvement situation when program elaboration is low than when it is high.

The model has the ability to account for some otherwise discrepant results observed in the experimental data within a theoretically consistent framework. The interactive effect of the program elaboration and attentional device factors on total cognitive response activity among viewers of the drinking and driving ad (figure 4, page 161), while in a direction opposite to that observed for Mobil 1 viewers, is essentially consistent with the model. The drinking and driving issue is characterized by a significantly higher level of involvement than is the use of
Mobil 1 motor oil. If issue involvement alone has the tendency to induce cognitive arousal in response to a relevant message, as implied by the model, one would expect a high level of commercial-relevant thought to emerge without the presence of such additional antecedents of cognitive arousal as high program elaboration or an attention-engaging device. High program elaboration, on the other hand, should lead to distraction, resulting (in the absence of a relevant attentional device) in reduced commercial-relevant thought. The insertion of a message-relevant attention-engaging device, however, should effectively complement product involvement to overcome the potentially distracting nature of high program elaboration, with the result that high levels of commercial-relevant thought should be observed. The interaction effect on total thoughts is largely consistent with those expectations, although some differences in means, though conforming directionally to these model predictions, did not emerge as significant. Results for the number of positive thoughts elicited followed the same pattern (figure 5, page 163).

Again, recall results, while seemingly inconsistent with those obtained for Mobil 1, are accommodated in the model. Thus recall of central message elements occurs to the greatest extent when viewers are in a distracted state as a result of the combination of high product involvement and high program elaboration (figure 14, page 184). When
the relevant attentional device overcomes the processing distraction of program elaboration, leaving the viewer in a cognitively active state, the preponderance of own thoughts thus elicited inhibits attention to and recall of specific message details.

OBJECTIVES REVISITED

A preliminary objective of the research was to establish whether commercials actually appear in program positions characterized by intense or varying levels of cognitive activity. The demonstration of such differences within two programs of diverse content and format effectively establishes the reality of within-program elaboration variance. The finding of significant differences across actual commercial positions points to the importance of assessing the impact of the phenomenon on viewer processing of advertising messages.

The second objective was to determine whether program elaboration enhances or interferes with the processing of commercial content. Rather than establishing an inherent advantage of high or low levels of program elaboration across all elements of information processing, the study revealed an interactive relationship of program involvement with the antecedents of cognitive arousal, as outlined in the model. In its assessment of multiple determinants of cognitive states, and in its separate consideration of
cognitive response and recall outcomes, this research moves well beyond earlier studies in this area which have confined themselves largely to the investigation of total recall effects in situations of low product involvement.

An assessment of whether program effects differ depending on whether the advertising appeals are pro- or counterattitudinal represented the third objective. Here the essential difference emerged not between those who possess prior positive or negative attitudes (and hence should view the messages as pro- or counterattitudinal), but between those with strong initial attitudinal inclinations (positive or negative) and those with weaker or neutral predispositions. The observation that attitude intensity is more relevant to the generation of commercial-relevant thought and the recall of message elements than is attitude valence reinforces the need to consider product involvement as a mediator of commercial processing.

A fourth objective was to ascertain whether the insertion of a dramatic attention-engaging device in commercials interrupts program elaboration to orient viewers' cognitive activity in the desired direction or creates further distraction. Results based on this variable illustrate the strong impact such a device may have on the processing of commercial messages. The utilization of an attention-engaging device as one factor in this research represents a first effort to identify message
characteristics which may counteract program-induced processing deficits. It also identifies some specific interactions of program and viewer characteristics which determine whether such a device is advantageous or detrimental.

Finally, the study attempted to identify the cognitive processes which account for the observed effects of program elaboration on commercial processing. The contribution made in this regard is identified in the discussion of the second objective. This study surpasses its predecessors in the sensitivity of its measures and the detail with which it investigates viewers' cognitive operations. In so doing, it not only leads to an enhanced understanding of the processes involved, but also serves as a useful model for subsequent investigations into program elaboration and the more general constructs of cognitive arousal and its antecedents and consequences.

MANAGERIAL IMPLICATIONS

The advertiser hoping to find in the results of this study a single approach to the program elaboration issue which would universally yield optimal results will be disappointed. However, the study was initially conceived in the belief that prior published works suggesting such simplistic prescriptions were incomplete and potentially misleading. That expectation was confirmed, and the results
of this study suggest a variety of strategies, depending on the advertiser's objectives, and on the expectations of viewers' level of involvement in the product or issue advertised and in the environment in which the advertisement is placed. On the basis of the results obtained in this study, and the proposed cognitive arousal model emerging therefrom, a variety of managerial implications emerge. Television advertising is clearly the communication domain to which this research most directly applies. However, the findings also warrant brief consideration within the framework of other media, both conventional (radio and print) and emerging (cable shopping and videotex services).

While specific strategic recommendations are set forth in this section, it is important to understand that they flow from the results of a single study, which has not yet borne the scrutiny of replication and application. An appropriate perspective on the recommendations which follow would be to view them as propositions for future scholarly research and field testing, rather than as stringent guidelines for marketing practice.

Television

The pattern of results obtained in this study for cognitive response activity and recall of commercial content suggests a need for advertisers to carefully weigh their objectives with respect to the amount and type of message
processing they desire of the viewing audience. Varying levels of cognitive arousal appear to induce substantially different processing results at two levels: (1) the types of commercial-relevant thoughts elicited -- those reflecting simple information rehearsal and those resulting from more intensive elaboration of message themes; and (2) the types of message elements stored in memory -- central message arguments and peripheral cues. The selection of an appropriate advertising strategy, then, requires an initial assessment of whether extensive personal elaboration of the message topic -- often at the expense of high recall of central message arguments -- or extensive recall of specific commercial details is most likely to satisfy the advertiser's objectives.

If consumer learning is a major objective of an advertising campaign, a commercial should be placed in an environment conducive to a high level of recall of central message elements. When the level of product or issue involvement within the target audience is low, placement of commercials in a program position characterized by low levels of viewer elaboration appears to provide such a setting. If, on the other hand, high levels of program elaboration are considered likely, opening the message with a dramatic attention-engaging device may provide sufficient distraction to suppress the personal associations (own thoughts) which may otherwise reduce the processing of
specific message details. The facilitation of learning of message details among consumers who approach the advertisement with a high level of product or issue involvement may likewise require the suppression of own thoughts via an attention-engaging stimulus.

Many advertisements could be accurately characterized as being low in complexity, conveying only one or two significant points of information. Clearly extensive learning is not always a requirement for a successful advertising campaign. For many commercials, simple brand name recognition may be an adequate outcome with respect to the level of commercial recall. What may be of greater value to advertisers than extensive central recall are the elaborative thoughts which tend to suppress recall. Under such circumstances, an active but undistracted cognitive state may be desirable among viewers of the advertisement.

If initial product involvement is low, high program involvement may serve to induce the desired state of cognitive activity. Alternatively, an attention-engaging device may perform the same function if program elaboration is low. To the extent possible, however, it would be desirable to avoid the combination of multiple antecedents of cognitive arousal (e.g., high program involvement and an attentional device without direct relevance to commercial content), since they may interact to distract viewers from commercial-relevant thought.
When product or issue involvement is high, a low-elaboration program position appears to be desirable. If the program environment is likely to elicit high levels of viewer elaboration, a device which immediately, dramatically and unambiguously calls attention to the product or issue in which the viewer is already highly involved may alleviate the program's distraction potential.

Radio

The basic concepts of the cognitive arousal model should transfer readily from a television to a radio environment. However, radio possesses some distinctive characteristics which may mediate some of the proposed relationships.

First, the situation surrounding a consumer's exposure to the broadcast transmission may be of greater importance in a radio than in a television context. Listeners may be working, driving, jogging, or just listening. Because the activities in which listeners are engaged are so numerous and varied, the distraction potential may be higher, as multiple external distractors interact with the cognitive arousal antecedents identified in the model. This suggests the need for advertisers to identify common behaviors accompanying message exposure among targeted listeners. In some instances, external distraction may be so great as to swamp any effects predicted by the cognitive arousal model,
leaving listeners almost totally inattentive to radio program or commercial content. Such a situation may render the use of multiple cognitive arousal antecedents necessary in order to counteract the influence of external stimuli which are diverting attention away from the broadcast. While the result may not be the cognitive state one would desire in the best of circumstances, attention at any level is preferable to no attention.

A second difference between radio and television which is relevant to this study lies in the variance in program elaboration associated with each. Ongoing program-relevant thought may be less relevant in radio, with fewer programs attempting to sustain a plot or action over the course of a half hour or an hour. If that is true, advertisers would be well advised not to rely on program elaboration to induce cognitive arousal. Alternatively, however, it is possible that nondramatic programming, such as conventional radio music formats, may induce a range of cognitive arousal comparable to that associated with television fare. For example, listeners may rehearse music and lyrics, or reflect upon prior experiences relevant to or associations aroused by a song.

A major distinction between print and broadcast advertising is the relative permanence of the former. A
reader's ability to obtain repeated exposure to a message at will induces a higher response opportunity than is present in a broadcast setting. Therefore, decrements in central recall associated with an active cognitive state may be less evident in a print than in a television advertising environment. Context involvement (analogous to program involvement) may be more universally desirable if, as a positive consequence, it causes readers to attend more closely to the page which contains the desired ad. Likewise, attention-engaging strategies may be effective with or without the presence of other cognitive arousal antecedents. For example, an irrelevant attentional device accompanying an ad which is embedded in a highly involving program may serve to distract a television viewer and suppress commercial-relevant thought. However, the greater response opportunity of a print setting -- i.e., the reader's ability to dwell at length upon a given stimulus and return to it at will -- may enable the consumer to overcome the distraction.

Emerging Media

Interactive cable television and videotex systems represent two emerging vehicles for the transmission of marketing messages. While a joint discussion of the two different technologies is simplistic, they potentially share some commonality with respect to the variables contemplated
in the cognitive arousal model. Since both types of services are somewhat removed from the entertainment focus of network television, and are utilized by paying subscribers, it seems that users would be unlikely to be in a state of cognitive passivity induced by low levels of product and program involvement. Therefore, in planning appropriate strategies for these involved consumers, marketers should decide on the basis of the desired processing outcomes -- high levels of central recall or own thought production -- whether or not to use an attentional device to introduce the product information. One might anticipate that such a device, acting in combination with high involvement levels, would disrupt the consumer's own-thought production and facilitate the learning of central message arguments.

Summary

The impact of differences between media in terms of response opportunity, external distraction, and product and program involvement variance is speculative at this point. However, each of these variables appears to be a plausible mediator of arousal, cognitive response generation and recall. As such, they warrant consideration in any attempts to apply the results of this study outside of the network television environment.
LIMITATIONS

This research clarifies and extends that which has gone before in the area of program context effects, but it is also subject to certain limitations. Thus, while many of the results reported herein conform to a reasonably parsimonious model of commercial processing, they do not provide a full and conclusive test of that model. The attempted manipulation of multiple independent variables at all relevant levels would clearly result in an unmanageable research design with exorbitant sample size requirements. But the absence of some manipulations renders certain of the inferences tentative, despite their conformity to the empirical results of this study and established theoretical paradigms.

Despite the prevalence of the utilization of blocking variables in ANOVA designs, and the abundant literature which establishes the robustness of the F-test (e.g., Box 1954), some concern remains about the interpretation of significant results associated with such factors. As Kennedy (1978, p. 380) notes:

Because levels of the assigned blocking variables were not designed and systematically manipulated by the investigator, . . . the investigator should avoid using terms and phrases which might imply a causal relationship between the blocking variable and observed response measures.

Thus results based on viewers' prior attitudes may not warrant as much confidence as those associated with the
treatment factors. However, the general consistency of results associated with this factor across both ads renders this more of an academic than a practical concern. The one condition in which it remains a sufficiently thorny problem to suggest that the reader should continue to hold out some skepticism is the negative attitude group, since pretest results allowed its formation for only one ad (thereby precluding replication).

The attention-engaging device was manipulated in terms of its presence or absence. While two forms of devices were employed, each was associated exclusively with a given commercial. Since each ad was tested with only a single form of the device, one cannot state with certainty that different results observed for the two devices are attributable to their differential levels of message relevance. Any other differences between them, such as the fact that one contained both audio and visual content while the other was exclusively audio, may have contributed to the discrepant results.

The product involvement component of the cognitive arousal model, while explaining some of the observed differences in results between the two test ads, awaits further research to be explicitly tested. The product/issue involvement data in the present study come from a post-hoc evaluation of that construct. Since exposure to a commercial may stimulate interest in a product or issue,
which may then be reflected in increased involvement scores, an appropriate test of the modeled impact of program involvement would require pre-exposure measurement or manipulation of that construct.

The ability to measure with precision the amount and content of cognitive activity has long eluded researchers in the psychological and behavioral sciences. While this study has attempted to improve upon prior research efforts in the program elaboration area by triangulating on multiple methods of measurement (i.e., thought listing, response times, and self reports), some inadequacies remain. The self-report approach is flawed, as noted in the prior chapter. Neither the response time nor the cognitive response data, as collected in the present study, permit one to distinguish directly between program-relevant thought and other idiosyncratic cognitive activity, unrelated to the program or the commercial. In the present situation, this limitation is not particularly damaging, since idiosyncratic thoughts could not readily explain the consistent demonstration of significant differences in cognitive activity between high- and low-elaboration program positions across independent samples.

Time may moderate program elaboration effects on commercial processing; i.e., program-relevant thought may dissipate as the viewer is exposed to multiple advertising messages in a commercial break. Whether such a moderating
effect exists, and the rate at which it occurs, have important implications with respect to the processing of commercials which fall in the middle or at the end of a break in the program. This is an issue which the present research fails to address, having inserted only one commercial in each program break.

FUTURE RESEARCH DIRECTIONS

This research has hopefully aided in resolving prior conflicts relative to the impact of program elaboration and in suggesting answers to some previously unaddressed questions. It also gives rise to a number of substantive issues which warrant additional research.

With the development of a revised model of commercial processing based on variance in cognitive arousal, a more complete model test is needed than this research was able to provide. In order to fully support the proposed effects of product/issue involvement, and the differential impact of relevant and irrelevant attentional devices, a more complete factorial design is needed. A design similar to that employed in this study, but including as independent variables product/issue involvement (high/low), program involvement (high/low), and attention-engaging device (relevant/irrelevant/absent) would provide a test of the currently unsupported paths in the model. A refined coding scheme for cognitive response and recall data, which
separates responses specifically relevant to the attention-engaging device from those associated with the commercial message which follows, would help to elucidate the effect of attentional devices in the processing of commercials.

A causal modeling framework could also be effectively utilized to validate the model's assumption that product involvement, program involvement and attentional devices serve as antecedents of cognitive arousal. By developing multiple measures for each of the proposed antecedent variables and for cognitive arousal, one could assess the magnitude and significance of each path, and obtain overall measures of fit.

In view of the present study's inability to assess the impact of a full range of prior attitudes across each test ad (negatively predisposed viewers were available only for the Mobil 1 commercial), further replication would be appropriate to confirm the conclusions of this study relative to that construct. Further testing of the hypotheses of this study in an advertising domain more conducive to the generation of positive and negative thoughts would provide a meaningful complement to the findings of the present research.

The rate of program-elaboration wearout is important in view of the effects demonstrated in this study. Do they persist over the course of an entire commercial break? If not, how long do they persist? To answer those questions
would require a replication of this study, using longer commercial breaks with multiple advertisements. Secondary-task response time measures would be particularly beneficial in such an investigation, because of their ability to provide a continuous and sensitive measure of the level of cognitive activity.

The observation that post-commercial program elaboration affects commercial processing, and not necessarily in a direction consistent with pre-commercial elaboration, suggests this as a fertile area for future research. What is the essential nature of such effects? How do they differ from pre-commercial elaboration impact? At what stage of processing do such effects arise (e.g., rehearsal or retrieval)?

The findings of the present study, and the cognitive arousal model derived therefrom, have potential application to marketing communications conveyed by alternative media. Replication of this research in alternative communication environments, such as radio, print, cable television and videotex, would facilitate the extension of the cognitive arousal model to those media.

CONCLUSION

The construct of program elaboration has been shown to play an important role -- and not a totally detrimental one as has often been supposed -- in the processing of
commercial messages. In revealing a variety of complex and sometimes counterintuitive effects of program elaboration, the present research adds significantly to the knowledge base in an underresearched area, and it also exposes a plethora of research questions.

Finally, for the highly involved reader who has read through six chapters in the hope of learning what happened to Ed, Alfred Hitchcock's obstreperous traveling salesman -- he died (not from poisoning, since the mysterious substance in his drink was only aspirin, but from a stress-induced heart attack). Would Ed be alive today if he had opted for consumer behavior instead of personal sales? One can only speculate.
Note: This instrument was administered to independent samples on two separate occasions: (1) to assess attitudinal variance relative to the topics of the proposed experimental advertisements; (2) to establish initial attitudes of experimental subjects in order to block on that construct.
We would like to know your attitude about some issues facing Ohioans:

1. Divestiture of state investments from companies with operations in South Africa would be:
   - Good __:___:___:___:___:___:___:___:___: Bad
   - Harmful __:___:___:___:___:___:___:___:___: Beneficial
   - Wise __:___:___:___:___:___:___:___:___: Foolish

2. Reducing cholesterol in my diet would be:
   - Good __:___:___:___:___:___:___:___:___: Bad
   - Harmful __:___:___:___:___:___:___:___:___: Beneficial
   - Wise __:___:___:___:___:___:___:___:___: Foolish

3. Confronting my friends about their driving after they have had two or three drinks is:
   - Good __:___:___:___:___:___:___:___:___: Bad
   - Harmful __:___:___:___:___:___:___:___:___: Beneficial
   - Wise __:___:___:___:___:___:___:___:___: Foolish

4. Family planning clinics are:
   - Good __:___:___:___:___:___:___:___:___: Bad
   - Harmful __:___:___:___:___:___:___:___:___: Beneficial
   - Wise __:___:___:___:___:___:___:___:___: Foolish

5. Buying a low-cost generic motor oil rather than a branded motor oil is:
   - Good __:___:___:___:___:___:___:___:___: Bad
   - Harmful __:___:___:___:___:___:___:___:___: Beneficial
   - Wise __:___:___:___:___:___:___:___:___: Foolish
1. My attitude toward divestiture of state investments from companies with operations in South Africa is:
   Favorable ___:___:___:___:___:___:___:___ Unfavorable

2. My attitude toward reducing cholesterol in my diet is:
   Favorable ___:___:___:___:___:___:___:___ Unfavorable

3. My attitude toward confronting my friends about their driving after they have had two or three drinks is:
   Favorable ___:___:___:___:___:___:___:___ Unfavorable

4. My attitude toward family planning clinics is:
   Favorable ___:___:___:___:___:___:___:___ Unfavorable

5. My attitude toward buying a low-cost generic motor oil rather than a branded motor oil is:
   Favorable ___:___:___:___:___:___:___:___ Unfavorable
Note: This instrument was administered to two groups. One saw the Mobil 1 commercial with the attention-engaging device present, while it was absent from the ad shown to the other group. Only those in the device-present condition responded to the measures on the second page of the questionnaire.
On the lines below, write down EVERYTHING you remember about the advertisement you just saw in the commercial break. This may include the words, the pictures or scenes, the music, and whatever else you remember about the ad.
1. The advertisement seemed realistic.

   Strongly Agree ___:____:___:____:____:____:____:___
   Strongly Disagree

2. The advertisement took my attention away from the program.

   Strongly Agree ___:____:___:____:____:____:____:___
   Strongly Disagree

3. The advertisement distracted me from thinking about the program.

   Strongly Agree ___:____:___:____:____:____:____:___
   Strongly Disagree

4. Do you recall hearing the sound of beeps at the beginning of the advertisement?

   Yes ___
   No ___

   (Respond to question 5 only if answer to 4 above is "yes.")

5. I found myself thinking about the beeps during the advertisement.

   Strongly Agree ___:____:___:____:____:____:____:___
   Strongly Disagree
Note: The instrument for the final data collection effort was prepared in two forms -- one for viewers of the Mobil 1 ad and the other for those exposed to the drinking and driving ad. For the sake of brevity, they are combined in this appendix. Where the differences are minimal, the wording employed in the drinking and driving version appears in parentheses following form used for Mobil 1. Where differences are more extensive, the entire page is duplicated, with drinking and driving following Mobil 1.
GENERAL INSTRUCTIONS

Many of the questions that you will be asked to answer make use of response scales like this:

Good ______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:______:_____:
I. On the lines below, please identify each commercial you recall having seen with the program:

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Please do not return to this page to make any changes or additions.
II. We are now interested in your own thoughts about Mobil 1 motor oil (confronting your friends about their driving after they have been drinking). The next page contains the form we have prepared for you to use to record your thoughts and ideas. Simply write down your first thought about Mobil 1 (confronting your friends on their drinking and driving) in the first box, the second thought that occurs to you in the second box, etc. Please put only one idea or thought in a box. You might have ideas all favorable to Mobil 1, or all unfavorable to Mobil 1, or a mixture of the two. (You might have ideas all on one side of the issue or the other, or a mixture of the two.) Any case is fine. Please state your thoughts and ideas as concisely as possible -- a phrase is sufficient. You may ignore spelling, grammar, and punctuation. Don't worry if you can't fill every box. You will have three minutes to write your thoughts. Just write down whatever your thoughts are about Mobil 1 (confronting your friends about their driving after they have been drinking). Please be completely honest and list all your thoughts about this brand of motor oil (the drinking and driving issue).

WAIT UNTIL INSTRUCTED TO TURN OVER THE PAGE AND BEGIN LISTING YOUR THOUGHTS.
III. At this time we would like you to indicate in the left-hand margin by each thought you recorded whether the thought was (+) favorable toward Mobil 1 motor oil (in favor of confronting your friends about their driving after they have been drinking), (-) unfavorable toward Mobil 1 (opposed to confronting your friends on their drinking and driving), or (0) neither favorable nor unfavorable to Mobil 1 (neither in favor of nor opposed to confronting your friends). If the thought is favorable toward Mobil 1 (in favor of confronting your friends), put a + (plus) in the left-hand margin next to that thought. If the thought is unfavorable to Mobil 1 (opposed to confronting your friends), put a - (minus) in the left margin. If the thought is neutral, place a 0 (zero) in the left margin.
IV. One of the ads accompanying the program segment you just saw was for Mobil 1 motor oil (about drinking and driving). On the lines below, write down EVERYTHING you remember about this ad. This may include the words, the pictures or scenes, the music, and whatever else you remember about this ad. Please write down everything you remember about the ad that was for Mobil 1 motor oil (about drinking and driving).

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Please do not return to this page to make any changes or additions.
V. Now please tell us how you feel about Mobil 1 motor oil.

Mobil 1 motor oil is:

Good: ______:________:_______:_______:_______:_______:_______
Bad:
Harmful: ______:________:_______:_______:_______:_______:_______
Beneficial:
Wise: ______:________:_______:_______:_______:_______:_______
Foolish:
Undesirable: ______:________:_______:_______:_______:_______:_______
Desirable:
Pleasant: ______:________:_______:_______:_______:_______:_______
Unpleasant:
Punishing: ______:________:_______:_______:_______:_______:_______
Rewarding:
Positive: ______:________:_______:_______:_______:_______:_______
Negative:
My attitude toward Mobil 1 motor oil is:
Favorable: ______:________:_______:_______:_______:_______:_______
Unfavorable:
I will use Mobil 1 motor oil in my car this winter:
Likely: ______:________:_______:_______:_______:_______:_______
Unlikely:

VI. Please answer each of the following questions by marking the space that corresponds most closely with how you personally feel.

A. The television program I saw was very interesting.

Strongly agree: ______:________:_______:_______:_______:_______:_______
Agree: ______:________:_______:_______:_______:_______:_______
Neither agree nor disagree: ______:________:_______:_______:_______:_______:_______
Disagree: ______:________:_______:_______:_______:_______:_______
Strongly disagree: ______:________:_______:_______:_______:_______:_______
V. Now please tell us how you feel about confronting your friends about their driving after drinking.

**Confronting my friends about their driving after they have been drinking is:**

- **Good**
- **Bad**

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**My attitude toward confronting my friends about their driving after they have been drinking is:**

- **Favorable**
- **Unfavorable**

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**I will confront my friends about their driving after they have been drinking:**

- **Likely**
- **Unlikely**

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VI. Please answer each of the following questions by marking the space that corresponds most closely with how you personally feel.

A. The television program I saw was very interesting.

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_strongly agree, agree, neither agree, disagree, strongly disagree_
B. Mobil 1 is a higher quality motor oil than most other premium motor oils.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

C. The television program was exciting.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

D. In addition to providing the normal lubricating qualities of a motor oil, Mobil 1 helps improve gas mileage.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

E. The television program was uplifting.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

F. Mobil 1 is no more effective under extremely cold conditions than other premium motor oils.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

G. The television program was involving.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

H. Mobil 1 is a synthetic motor oil.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

I. The television program was worthwhile.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree
B. It is never safe to drive after drinking.

Strongly Agree  Agree  Neither agree  Disagree  Strongly disagree

C. The television program was exciting.

Strongly Agree  Agree  Neither agree  Disagree  Strongly disagree

D. I should not let my friends drive drunk.

Strongly Agree  Agree  Neither agree  Disagree  Strongly disagree

E. The television program was uplifting.

Strongly Agree  Agree  Neither agree  Disagree  Strongly disagree

F. Two or three drinks are not enough to impair one’s ability to drive a car.

Strongly Agree  Agree  Neither agree  Disagree  Strongly disagree

G. The television program was involving.

Strongly Agree  Agree  Neither agree  Disagree  Strongly disagree

H. If a friend insists on driving while drunk, I should take the car keys away from him or her.

Strongly Agree  Agree  Neither agree  Disagree  Strongly disagree

I. The television program was worthwhile.

Strongly Agree  Agree  Neither agree  Disagree  Strongly disagree
J. Mobil 1 pours more easily at 35 degrees below zero than other premium motor oils.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

K. I would watch a television program like this if aired at a convenient time for me.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

L. At 35 degrees below zero, a person can drive a nail into a block of wood using a banana as if it were a hammer.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

M. Mobil 1 is a more effective motor oil under most driving conditions than most other premium motor oils.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

N. The television program was entertaining.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree

O. At 35 degrees below zero, a rose shatters like glass when squeezed.

Strongly Agree Neither agree Disagree Strongly agree nor disagree disagree
J. A true friend advises a friend not to drive after drinking.

Strongly Agree Neither agree Disagree Strongly disagree

K. I would watch a television program like this if aired at a convenient time for me.

Strongly Agree Neither agree Disagree Strongly disagree

L. The Licensed Beverage Information Council promotes increased consumption of alcoholic beverages.

Strongly Agree Neither agree Disagree Strongly disagree

M. Nondrinkers should not impose their views on their friends who drink.

Strongly Agree Neither agree Disagree Strongly disagree

N. The television program was entertaining.

Strongly Agree Neither agree Disagree Strongly disagree

O. Driving after drinking is extremely hazardous only when road conditions are bad, as in a storm.

Strongly Agree Neither agree Disagree Strongly disagree
VII. Please tell us how you feel about the use of a premium grade, cold weather motor oil (idea of involving yourself in a friend's drinking and driving behavior).

**Using a premium grade, cold weather motor oil?**
(Becoming involved in a friend's drinking and driving behavior is?)

<table>
<thead>
<tr>
<th>Important</th>
<th>Unimportant</th>
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<td><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong></em>_____</td>
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<tr>
<th>Irrelevant</th>
<th>Relevant</th>
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<td><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong></em>_____</td>
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Means a lot to me Means nothing to me

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<th>Not needed</th>
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<td><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong></em>_____</td>
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VIII. Now please tell us how you feel about the Mobil 1 (drinking and driving) commercial.

**The Mobil 1 (drinking and driving) ad is:**

<table>
<thead>
<tr>
<th>Good</th>
<th>Bad</th>
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Extremely Quite Slightly Neither Slightly Quite Extremely

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<thead>
<tr>
<th>Undesirable</th>
<th>Desirable</th>
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<td><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong></em>__</td>
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Pleasant Unpleasant

| Extremely Quite Slightly Neither Slightly Quite Extremely |
| ___:____:____:____:____:____:____:____:____:_____|

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<thead>
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<th>Persuasive</th>
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Positive Negative

| Extremely Quite Slightly Neither Slightly Quite Extremely |
| ___:____:____:____:____:____:____:____:____:_____|

Means a lot to me Means nothing to me

<table>
<thead>
<tr>
<th>My attitude toward the Mobil 1 (drinking and driving) ad is:</th>
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</thead>
<tbody>
<tr>
<td>Favorable</td>
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<tr>
<td><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong>__:</em><em><strong>:</strong></em>__</td>
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Extremely Quite Slightly Neither Slightly Quite Extremely
IX. PROGRAM EVALUATION

In this section, we would like to know how you feel about the program you just saw.

The program was:

Uplifting

Depressing

Sad

Happy

Positive

Negative

Important

Unimportant

Of no concern

Of concern to me

Irrelevant

Relevant

Means a lot to me

Means nothing to me

Useless

Useful

Valuable

Worthless

Trivial

Fundamental

Beneficial

Not beneficial

Matters to me

Doesn’t matter

Uninterested

Interested

Significant

Insignificant
The program was:

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<tr>
<th>Vital</th>
<th>Superfluous</th>
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<th>Exciting</th>
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<th>Nonessential</th>
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<tr>
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<th>Desirable</th>
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<tr>
<th>Wanted</th>
<th>Unwanted</th>
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My attitude toward the program is:

<table>
<thead>
<tr>
<th>Favorable</th>
<th>Unfavorable</th>
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Extremely Quite Slightly Neither Slightly Quite Extremely
X. Please respond to the following descriptive questions.

A. Mark the space that corresponds most closely with your experience in changing motor oil (beer drinking frequency):

I do not drive and have no need to change oil. (I never drink beer.) ______

I drive a car, but someone else in my household takes care of oil changes. (I rarely drink beer.) ______

I take my car to a mechanic or oil change specialist and use the oil s/he specifies. (I sometimes drink beer.) ______

I take my car to a mechanic or oil change specialist and request a specific brand of motor oil. (I frequently drink beer.) ______

I personally change the oil in my car. ______

B. Have you seen the Mobil 1 (drinking and driving) ad before today?

Yes _____ No _____

C. Have you seen this episode of "Alfred Hitchcock Presents" before?

Yes _____ No _____

D. Describe in your own words in the space below what you believe to be the purpose or objective of this study.

-------------------------------------------------------------------------------

-------------------------------------------------------------------------------

-------------------------------------------------------------------------------

E. Did you at any point in the experiment return to any page(s) of the questionnaire previously completed and make any changes or additions (other than where instructed to do so)?

Yes _____ No _____

If yes, please explain: ________________________________

-------------------------------------------------------------------------------
F. Did anyone who participated in this study before you tell you anything about what to expect?

  Yes ____  No ___

If yes, please describe what was said: ______________________

XI. Please respond to the following questions about the program and commercials.

A. Do you recall hearing the sound of beeps (an automobile crash) at the beginning of the Mobil 1 advertisement (in the drinking and driving advertisement)?

  Yes ____  No ___

B. Indicate your level of agreement with the following:

  I found myself thinking about the action in the program during some of the commercial time:

  __________'__________'__________'__________'__________'__________
  Strongly    Agree    Neither agree    Disagree    Strongly
  agree       nor disagree    disagree

  The action in the program distracted me from thinking about the commercials:

  __________'__________'__________'__________'__________'__________
  Strongly    Agree    Neither agree    Disagree    Strongly
  agree       nor disagree    disagree

  The beeps (crash) in the Mobil 1 (drinking and driving) ad took my attention away from the program:

  __________'__________'__________'__________'__________'__________
  Strongly    Agree    Neither agree    Disagree    Strongly
  agree       nor disagree    disagree
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Smith, Donald C. "Television Program Selection, Liking for Television Programs, and Levels of Attention Given to Television by Housewives." *Radio-Television Audience Studies, New Series No. 3*. Columbus, Ohio: The Ohio State University Department of Speech, 1956.


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