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dissertation entitled

THE ROLES OF MESSAGE COMPREHENSIBILITY AND COGNITIVE SCHEMATA IN THE PROCESSING OF TELEVISED POLITICAL ADVERTISEMENTS: WHEN FUZZY WUZZY WAS THE MESSAGE

presented by

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has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Mass Media Ph.D. Program

Major professor

Date 4/5/95

THE ROLES OF MESSAGE COMPREHENSIBILITY AND COGNITIVE SCHEMATA IN THE PROCESSING OF TELEVISED POLITICAL ADVERTISEMENTS: WHEN FUZZY WUZZY WAS THE MESSAGE

By

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A DISSERTATION

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Mass Media Ph.D. Program

1993

ABSTRACT

THE ROLES OF MESSAGE COMPREHENSIBILITY AND COGNITIVE SCHEMATA IN THE PROCESSING OF TELEVISED POLITICAL ADVERTISEMENTS: WHEN FUZZY WUZZY WAS THE MESSAGE

By

Michael E. Steele

A stream of research in political communication has focused on the active processing of political messages. The present research continues this line of inquiry. The experiment was designed to examine how audience cognitive schemata and message comprehensibility affect message cue utilization and media message induced attitude change. The study employs a 2 (cognitive schemata: image vs. issue) X 2 (message comprehensibility: high vs. low) factorial design. Subjects' default processing strategies were determined in Stage I of the study by recording their responses to a series of extant political broadcast commercials. In Stage II of the study, message comprehensibility was manipulated in political broadcast commercials designed especially for the study. The video track for the commercial was crossed with a high comprehensibility audio track and a low comprehensibility audio track, producing two versions of the stimulus commercial.

As predicted: Both image and issue processors encoded more visual information under low comprehensibility

message conditions, rated low comprehensibility messages less favorably and as less pleasant. Furthermore, issue processors rated low comprehensibility messages less favorably and as more incomprehensible than did image processors.

Several predictions concerning the effects of message comprehensibility and audience cognitive schemata on candidate and message evaluation and on vote likelihood were not supported. However, the patterns of means were in the predicted directions. In light of the non-robust nature of the comprehensibility manipulation, the failure to reach significance was not surprising. Theoretical and practical implications of these findings are explored.

Dedicated to
the Fight for Animal Rights and
the Memory of Sweet Pea

ACKNOWLEDGEMENTS

I would like to express my sincerest appreciation and gratitude to the members of my dissertation committee, Dr. Gina Garramone, Dr. James Gaudino, Dr. E. Lincoln James and Dr. Stephen Lacy, for their guidance, encouragement and patience.

To Dr. Garramone, my dissertation director and mentor, I extend my deepest appreciation for her intellectual inspiration, guidance and friendship. Without her unflagging support, this dissertation never would have seen the light of day.

For their intellectual insights, critical analyses and occasional, thoroughly enjoyable beer quaffing episodes, I extend my deepest regards to my remaining committee members. It made the long journey a whole lot more pleasant.

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CHAPTER I

INTRODUCTION

As a process, voter decision-making has both puzzled and fascinated researchers for several decades. At times it has been conceived to be complex and calculated while at others it has been viewed as unsophisticated or even capricious. Various models have been furthered to explain the process. Each one differs by either explaining the process "better," exploring another aspect of the process, or incorporating new or more variables into the conceptual framework. Recently, work has focused on advertising's role in the political process. Critics contend that advertising merchandises political candidates much like bars of soap. They suggest that creative and monetary resources are channeled into creating winning candidate images at the expense of discourse about substantive issues. This criticism has gained momentum (and some credence) due to the increased proportion of campaign dollars earmarked for televised political advertising and the proliferation of and reliance on media pundits. While the concern has heuristic merit for researchers, it addresses the very foundations of our democratic way of life.

In light of these lofty considerations, political communication researchers have begun to focus on the cognitive processes that mediate political communication effects. One line of inquiry has focused on the role of both cognitive schemata and media message characteristics in determining political communication effects. The present research continues and extends this line of inquiry. Specifically, it examines the role of cognitive schemata in the processing of information from televised political advertisements with high and low levels of audio comprehensibility. Several broad questions are addressed: (1) How do cognitive schemata affect message processing? (2) What is the impact of message comprehensibility on the acquisition of information? (3) How do message comprehensibility and cognitive schemata affect memory for candidate and issues, and evaluation of candidate and message?

Theory and research from various domains are used as a framework for formulating hypotheses that follow from these questions. Relevant literature will be summarized in the following order. First, an examination of political information (i.e., issue and image information) and its processing is undertaken. The next section addresses the role of cognitive schemata in the processing of information--in particular, the processing of political information. Finally, a review of literature dealing with

the effect of message comprehensibility on memory and information processing is performed.

REVIEW OF RELEVANT LITERATURE

Political Information and Its Processing

Today's voter has access to a myriad of sources for obtaining information concerning political issues, candidate issue stands and candidate personal qualities. One venue, televised political advertising, has received increasing scrutiny from mass communication and political scholars (Garramone, 1983, 1984, 1985,1986; Garramone, Steele, Hogan & Rifon, 1987; Garramone, Steele & Pinkelton, 1991; Garramone, Steele & Hogan, 1988; Geiger & Reeves, 1981; Kaid & Sanders, 1978; Keeter, 1987; Kraus & Perloff, 1985; Lau & Sears, 1986) and a disproportionate increase in campaign dollars (Shyles, 1984).

Researchers have divided information contained in political advertisements into two broad categories--image and issue information. Image information reflects attributes of the candidate. It circumscribes candidate's character, personality, appearance and behavior (Garramone, 1986; Kinder, Peters, Abelson, & Fiske, 1980). Issue information encompasses candidates' stands on issues, their past political performance, and their role in the political process (Garramone, 1986). Additionally, issue information can contribute to candidate image. For example, a candidate who favors increased funding for the

homeless, a political issue, might be thought of as a compassionate person, an image attribution. Content analyses of televised political advertisements confirm the existence of both issue and image information (Joslyn, 1980; Hofstetter & Zurkin, 1979).

Issue and image information are utilized by voters in the decision-making process. For example, voters claim to use televised political advertisements to learn about candidate issue stands, qualifications and personal qualities (Atkin, Bowen & Sheinkopf, 1973; Mendelson & O'Keefe, 1976). Some research even suggests that individuals learn more from political advertisements than they do from news broadcasts (McLure & Patterson, 1976). However, data indicate that voters are primarily interested in extracting nonverbal and image information from political advertisements (Katz & Feldman, 1962; O'Keefe & Sheinkopf, 1974; Rosenburg & McCafferty, 1987). Research further suggests that image information and nonverbal communication can affect the political process. For example, candidate physical attractiveness has been demonstrated to affect vote likelihood and evaluation of candidate and message (Garramone, Steele & Pinkleton, 1991; Rosenburg, Bohan, McCafferty & Harris, 1986; Rosenburg & McCafferty, 1987; Steele, Garramone & Hogan, 1988; Stokes, 1966).

Results such as these suggest that affective elements

of a message (e.g., physical attractiveness) may influence the processing of the message and, quite probably, its subsequent effects. The role that affect plays in information processing has received increased interest and research energy from several disparate, academic domains.

Research on Affect

Much of the psychological research from the 1960s through the early 1980s focused on the person as information processor. During this cognitive revolution, scholars pursued the impact of message content on various cognitive variables (e.g., recall and recognition). The past decade, however, has witnessed a renewed interest in the effects of persons' affective reactions to messages (Abelson, Kinder, Peters & Fiske, 1982; Burke & Edell, 1989; Fiske, 1981; Higgins, Kuiper, & Olson, 1981; Holbrook & O'Shaugnessy, 1989; Madden, Allen & Twible, 1988; Mitchell & Olson, 1981; Shimp, 1981; Lutz, 1985). Leaders in cognitive psychology have suggested that conceptualizing thought as being free from emotional influence is short-sighted and are now incorporating affect into their models (Bower, 1981; Norman, 1980, Piaget, 1981). It even has been suggested that cognitive and affective systems may operate independently of each other (Zajonc, 1980).

Fiske (1982) suggests that some categories stored in

memory may be affectively charged. This affect may be transferred to stimulus objects that activate the category. For example, persons are represented as instances of a category, such as politician. To the extent that a person is perceived to match this stereotype (e.g., politician), the affect associated with the category will be transferred to the person. Someone perceived to be a politician by an individual with negative category affect will be regarded poorly unless positive, individuating information becomes available to temper the category affect.

In consumer behavior literature, one important construct that has emerged from this renewed focus on affect is attitude-toward-the-ad (A_{ad}). A_{ad} is defined as "a predisposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion" (MacKenzie & Lutz, 1989, p. 49). This conceptualization aligns with Fishbein & Ajzen's (1975) view of attitude in that it rests solely on evaluative reactions to a stimulus and excludes cognitive and behavioral responses. Advocates of A_{ad} contend that a positive attitude toward an advertisement can translate to a positive attitude toward the product. This appears to be the raison d'etre behind image-oriented political advertisements. In empirical studies, A_{ad} has been shown to be an important mediator of brand attitude and inten-

tion to purchase (Mitchell & Olsen, 1981; Shimp, 1981).

Empirical research in social cognition parallels these findings. The results suggest that affective as well as cognitive responses to a message may exert considerable influence on message evaluation and behavioral reactions. For example, Snyder & DeBono (1985) demonstrated differences in how high and low self-monitoring individuals react to advertising strategies. Low self-monitors reacted more positively to quality-oriented advertising whereas high self-monitors reacted more postively to image-oriented advertisements. High self-monitors were willing to pay a higher price for products advertised with an image-orientation, and were more willing to try products advertised with an image appeal. It appears affective elements of the image advertisement were capable of invoking a positive attitude toward both the advertisement and the product.

Geiger & Reeves (1991) suggest that the distinction between affective and cognitive message elements may account for the differential processing of televised political information. Issue information is viewed as cognitive and is conveyed primarily through the audio channel. A voice-over, or the candidate, may express his/her stand on issues and detail past accomplishments. The processing of this information is primarily a cognitive activity as voters must comprehend the meaning

of the information if it is to be successfully utilized in voter decision-making. Due to this increased cognitive effort, issue information should be processed at a deeper, semantic level, producing a stronger memory trace (Craik & Lockart, 1972). Image information is affective and is conveyed through both the audio and video channels. Image-oriented advertisements are intended to create positive affect for the candidate. These messages often depict the candidate involved in "worthy" activities and may be accompanied by music and other affectively charged visuals (e.g., sunsets, wildlife, children playing, etc.).

The impact of information on a person's memory and behavior is likely dependent on that person's information processing behavior. Since the amount and variety of information contained in any political advertisement is likely to be greater than a person possibly could attend to effectively, individuals' processing behavior is necessarily selective in what is noticed, attended to and encoded. This selective process doesn't appear random but rather appears dictated by cognitive structures that have been labeled cognitive schemata.

Information Processing and Cognitive Schemata

Social psychology has been dominated by three conceptual strains in recent history: man as consistency seeker, as naive scientist and as cognitive miser (Lau &

Sears, 1986; Taylor, 1981). As consistency seeker, several theories suggest that people are uncomfortable when they experience inconsistency (Festinger, 1957; Heider, 1946). The inconsistency may be between beliefs and attitudes, attitudes and behavior or among attitudes. People are driven to resolve the discomfort of inconsistency by revising their attitudes, beliefs or behaviors. Although some data support this view, evidence also suggests that people are quite capable of living with the inconsistency (Taylor, 1981).

The naive scientist approach suggests that people are rational thinkers and problem solvers. For example, attribution theory (Jones & Davis, 1965) suggests that people ascribe causality for others' behavior by methodically and logically analyzing the person/situation context. The rational man approach was dealt a telling blow, however, as research emerged demonstrating that human reasoning is replete with "faulty" logic and heuristic processes (Cohen, 1979; Kahneman & Tversky, 1982; Nisbett & Ross, 1980).

Based on these limitations, a third strain of thinking has developed which views man as a cognitive miser, economizing with respect to information selectivity, attention and active memory. Central to much of this work in social and political cognition is the notion of cognitive schemata (Cantor & Kihlstrom, 1981; Conover &

Feldman, 1984; Fiske & Kinder, 1981; Fiske & Taylor, 1984; Lau & Sear, 1986; Hamill & Lodge, 1986).

Cognitive schemata represent organized knowledge structures about a particular concept (Bartlett, 193?). They include both the defining features and relevant attributes that constitute the concept and the relationships among the attributes (Rumelhart & Ortony, 1977; Crocker, Fiske & Taylor, 1984). They aid information processing by determining what information is attended to, how it is encoded and stored, and how it is utilized (Crocker et al., 1984). People use schemata for perceiving visual arrays, for understanding meaningful prose, for processing information about the natural world, for understanding and perceiving other persons and for perceiving and guiding their own behavior (Tesser, 1978).

Schemata are hierarchically organized with more abstract or general knowledge at the top and categories of more specific information nested within the general categories (Taylor & Crocker, 1981). For example, within the dominant schema for politician is likely to be subschemata for Republican and Democratic politicians. This allows processing of information at an abstract level for a candidate with an unknown political affiliation. However, once political affiliation is discerned, the more concrete subschema is called upon to process additional information.

Schemata are composed of variables. Values for the variables are determined by the environment. A schema for politician, for example, probably would include the variable political affiliation. Democrat and Republican would be constraint values; these are values that the variable can assume. For a politically unsophisticated person, these may be the only constraint values. However, as the person becomes more politically conversant, additional constraint values can be added for party affiliation (e.g., Libertarian, Green, American Socialist). Variables and values can be added or deleted as the schema develops. During this process, schema structure becomes more complex as cohesive linkages are formed between a variety of variables based on experience.

One way schemata facilitate information processing is by filling-in variables with default values if no values are specified (Rumelhart & Ortony, 1977; Crocker et al., 1984). The default value is a best guess based on the values of associated variables. For example, if a person listens to a speech by an unrecognized politician, s/he may fill-in the value Republican if the politician espouses pro-military and anti-abortion stands.

Thus, perceptual input may be shaped by schemata. If a person encounters a new piece of information and interprets it to be a type for which there is an existing schema, the schema becomes instantiated (activated) and

the information is processed. Since the schema contains information on what relationships should exist among variables, the input may be assimilated (shaped) to fit the schema (i.e., values may be filled-in for variables). Schemata are not immutable, however. If instances arise indicating that a schema is no longer representative of a particular domain, it may be accommodated (revised) to better fit the data (Crocker et al., 1984, Rumelhart & Ortony, 1977; Tesser, 1978).

People develop schemata for their various domains of experience, including the political domain (Garramone et al., 1991; Lau, 1986). Schemata evolve, grow and mature to fit the variety of situations that a person encounters. For example, a person knowledgeable of political issues and the political process (schematic) would be adept at processing new information about a political topic. On the other hand, a person with little political sophistication (aschematic) might find the same information to be so much political babble (Converse, 1975; Fiske, Kinder & Larter, 1983). There is little chance that the aschematic would encode much of the information and any that was encoded would be hard to retrieve due to the unstructured, disorganized way it was processed.

Based on experience, people have varying levels of schema development. The degree of schema development

affects the quantity, organization, compactness and use of schematic knowledge (Crocker et al., 1984). An expert's schema contains more information and more dimensions than a novice's. For example, in one study (Chase & Simon, 1973), master chess players and non-chess players were shown chessboards in various stages of play and chessboards with pieces randomly scattered over the board. Master chess players were able to recall all the in-play boards but were no better than the novices at recalling the random boards. Non-chess players found both boards equally difficult to recall. Whereas master chess players' schemata allowed them to chunk in-play boards into meaningful units, the non-chess players had no schemata to rely on for organizing the daunting array of chess pieces. Markus & Smith (1981) found similar results concerning experience-based differences in self knowledge. Individuals expert at being independent or dependent (self-schematic) were better able to process information about self and had readier access to self-descriptive behaviors than did aschematics.

Since people have limited cognitive capacity for processing information, schemata function to direct attention to information relevant to a particular task (Crockere, et al., 1984; Tesser, 1978; Valenti and Tesser, 1981). For example, if a voter desires to form an image for a political candidate, the cognitive schema for

politician image formation presumably would be invoked. This schema would include traits and their relationships that are deemed relevant for politician image formation. These might include traits such as power, compassion, honesty, fluency, and intelligence (Kinder et al., 1980).

Garramone (1983) investigated the impact of image motivation (i.e., to attend to a political message to form an impression of the candidate's personality) on information processing. Hypothesizing that a person who is motivated to process a political message to form an impression would attend to candidate physiognomic characteristics as well as verbal information, she found that image motivated persons paid greater attention to the video component of a commercial than did issue-motivated persons.

Lau (1986) suggests peoples' political schemata emphasize one or more of the following factors (within cognitive limitations): (1) political issues, (2) group relations, (3) party identification and (4) candidate personality factors. Moreover, individuals are relatively consistent over time in their use of political schemata. Johnston (1986) found that voters maintain either a predominantly issue or image processing orientation irrespective of advertising content. They consistently encoded either high image, high issue, or moderate image-moderate issue responses to either high image or high

issue commercials. Thus, the information a person extracts from a political message is a joint function of message content and cognitive schemata. Meaning is not in the message alone, but is a result of the interaction of the schema with the message.

Depending on individuals' schemata, they consistently process, store and, ultimately, use for evaluation specific types of information. Peoples' information processing behavior, strongly influenced by the schemata, governs the information channels and message characteristics which will be attended to and encoded. It is expected that people using issue schemata will focus primarily on the audio channel, which is where issue information is most likely contained. Since image information is conveyed by both the audio and video channels, image processors would be expected to attend to both channels and encode more visual information than issue processors (Garramone, 1983, 1984; Garramone et al., 1991; Steele et al., 1988). If recall and the prominence of visual and verbal information in memory are means for assessing encoding, then the following predictions are offered:

$H1_a$: Image processors will encode more visual information than issue processors.

$H1_b$: Issue processors will encode more issue information than image processors.

An extensive literature in psychology suggests verbal and visual information processing and memory may be quite different (Paivio, 1975, 1978). Paivio & Begg (1974) propose a dual-coding model in which visual stimuli tend to be processed and stored simultaneously in an imagery system, whereas verbal information is handled sequentially and is stored in an independent verbal system. Another body of literature, although not incompatible, suggests the differences in processing may be due to hemispheric lateralization (Anderson, Garrison & Anderson, 1979; Geschwind, 1979). Evidence suggests that the left brain is responsible for analytic, logical thought processes, which would characterize the verbal channel, whereas the right hemisphere specializes in gestalt processing, which would characterize the video channel. Exactly how this research may tie in with the notion of schemata is beyond the scope of this work. However, it may suggest that persons' schemata ultimately may be driven by hemispheric dominance. For example, a person with an image schema for political information processing may be driven by left hemispheric specialization and thus attend to and encode a greater amount of visual information than right hemisphere driven issue processors.

Although people are relatively consistent in their schema choice within a domain, occasionally they may use different schema to think about the same object (Tesser,

1978). Indeed, even though a person has greater facility using one schema does not mean that the schema will always be used. As situations arise and objectives change, individuals may choose to "tune-in" different schemata (Jeffery & Mischel, 1979; Tesser, 1978; Yalch & Elmore-Yalch, 1984; Zajonc, 1968). For example, early in a presidential campaign people who are predominantly issue-oriented processors may choose to winnow the crowded field based on image information. It may be easier to decide initially who seems presidential and to concentrate effort on their issue positions rather than processing all candidates' issue stands. Schema choice, then, can be a function of objectives and circumstances. Choosing one schema over another has important implications, however, since it would call attention to different aspects of the stimulus (Garramone, 1983, 1984, 1986; Garramone et al., 1991; Steele et al., 1986; Tesser & Durheiser, 1978).

Cognitive schemata exert a strong influence on information processing; they direct attention to channels relevant to the current processing objective. For example, as noted, image motivated people would more likely attend to the visual channel than would issue motivated people (Garramone, 1983, 1984; Steele et al., 1988; Garramone et al., 1991). Moreover, various message characteristics should come into and out of prominence depending on the processing objective. Thus, the impact

of these message characteristics would vary according to persons' processing orientation. One message characteristic that might be influenced by processing objectives, and ultimately cognitive schemata, is message comprehensibility.

Message Comprehension

With one stroke of the pen, Lasswell (1948) set much of the agenda for communication and persuasion researchers for the latter half of this century. Research spurred by his oft cited question "Who says what in which channel to whom with what effect?" has dominated the empirical landscape since the 1950s (p. 36). For example, the Yale Group (Hovland, Janis & Kelley, 1953) organized its research program around the question and studied the effect (attitude change and message retention) of who (source) says what (message) to whom (receiver) through which channel (medium). They clearly recognized that comprehension was a major factor in this communication process, labeling it an internal mediating device.

More recently McGuire (1968, 1972) introduced one of the first models of information processing. Its conceptual underpinnings are evidently rooted in the work of the Yale Group, and message comprehension plays a central role here as well. The stochastic model has five steps: (1) attention, (2) comprehension, (3) yielding,

(4) retention and (5) action. Being probabilistic in nature, failure at any one stage precludes reaching the succeeding stage(s). For example, if a person does not comprehend the arguments in a message, s/he will not yield to the position advocated.

Comprehension generally has been considered one of the most important results of communication (Jacoby & Hoyer, 1982). It is viewed as critically important since it is antecedent to other effects--memory retention, belief formation and change, attitude formation and change, and behavioral intention (Eagly, 1974; Eagly & Chaiken, 1984; Jacoby & Hoyer, 1982; Lavidge & Steiner, 1961; McGuire, 1981; Petty & Cacioppo, 1981). Despite the critical role that comprehension has been accorded, there has been a dearth of research effort addressing the variable (Chaiken & Eagly, 1984; Fishbein & Ajzen, 1981; Jacoby & Hoyer, 1982, 1987, 1989; Ratneshwar & Chaiken, 1991). Much of the communication and persuasion research that does address comprehension combines it with attention into a single step (reception) because of the difficulty of measuring attention and comprehension separately. The existing research seldom even directly measures or manipulates the reception process. Instead, investigators typically manipulate independent variables (e.g., credibility) that may influence reception. They then measure recall and recognition (i.e., measures of

retention) as surrogate measures of reception. Finally, they determine whether the independent variables exert parallel effects on retention and attitude change.

In an attempt to manipulate comprehension directly, Eagly (1974) told subjects they were about to hear a lecture by a physiological psychologist on sleep research. Subjects were told the lecturer would suggest that people need less sleep than they normally get. The first group heard a clear tape of the lecture, which contained six arguments to justify the less sleep recommendation. The second group heard the same lecture and six arguments, but the recording was of low quality with plenty of background noise. Subjects in the good comprehensibility condition were more likely to agree with the lecturer's recommendation and recalled more of the support arguments than the low comprehensibility group. Such data provide further evidence of the importance comprehension plays in communication and persuasion processes.

Comprehension may be described as the successful interaction of the perceiver with the message (Rumelhart & Ortony, 1977). Since comprehension is a learning process in which prior knowledge plays an important role, schemata are central to the process of comprehension. Anderson (1977) and Schank & Abelson (1977) describe the constructive role of schemata, indicating that schemata serve as organizers for new material and without them the

very notion of comprehension and learning would be impossible. Information processing is directed at choosing schemata which best account for incoming information (Petty & Cacioppo, 1981). Once sufficient accounting is achieved, comprehension is said to have occurred (Rumelhart & Ortony, 1977). What gets stored in memory is not a veridical copy of the input but rather the interpretation of the information provided by the instantiated schema. Thus, comprehension can be considered the selection of appropriate schema and binding variables to account for a situation, and then verifying that the schemata do indeed account for the situation.

Political communication scholars have become interested in the process by which messages exert their effect rather than focusing solely on the effect (Garramone et al., 1991). Research dealing with cognitive schema and comprehension suggests that people bring to messages schemata appropriate for processing the particular type of information (Crocker et al., 1984). For example, within the political domain, a person with an issue schema would approach a political advertisement with the objective of comprehending issue stands for the particular candidate. Image processors would approach the same advertisement with the primary objective of forming an image of the candidate.

Despite these objectives, there is still the

possibility that the channel(s) to be relied on for obtaining schema-specific information could be incomprehensible. For example, a political message discussing national fiscal policy and debt reduction could easily become mired in economic jargon and quantitative minutia, reducing the message to a low comprehensibility level. This has interesting implications when coupled with research on the channel selectivity of issue and image processors. For example, if the audio channel is incomprehensible, how would this affect image and issue processors? Would issue processors shift their attention to the video channel? Would image processors devote even more of their processing energy to the video channel? A few studies may help shed some light on these questions.

Research suggests that children are sensitive to television program comprehensibility, paying attention to those portions of the program that are most understandable (Lorch, 1979; Pezdek & Hartman, 1983; Anderson, Lorch, Smith, Bradford & Levin, 1981). Marketing research suggests that low-comprehensibility messages affect persuasion (Yalch & Elmore-Yalch, 1984), reduce interest in and attention to the message (Anderson & Jolson, 1980), and reduce motivation to process (Witt, 1976). For example, Yalch & Elmore-Yalch (1984) exposed subjects to commercial messages with varying amounts of quantitative information under conditions of high and low source

expertise. (Messages high in quantitative information are considered more complex than their less quantitative counterparts and, thus, are deemed less comprehensible.) Subjects exposed to the high quantitative message became disinterested in pursuing issues in the message. Instead, they shifted from processing central cues (issues) to processing peripheral cues (source expertise). Thus, messages high in quantitativeness that employed high expertise sources (i.e, a peripheral cue) were more persuasive than high quantitative messages coupled with low expertise sources. However, source expertise had no effect when information was presented in a nonquantitative manner. The few studies in marketing that found persuasion enhanced by quantitativeness were those in which audiences were motivated and capable of processing the quantitative messages (Anderson & Jolson, 1980; Holbrook, 1978).

In the present research, it is suggested that if the audio channel is low in comprehensibility, issue processors will devote more cognitive energy to the video channel than they would if the message was higher in comprehensibility. That is, they will tune-in the alternative schema (image) in an attempt to comprehend the material in the message. Furthermore, image processors will devote even more of their attention to the video channel, as the the audio channel will offer little in the

way of comprehensible image information. Based on these predictions, the following hypothesis is offered:

H2: Issue and image processors will encode more visual information under low audio comprehensibility conditions than under high audio comprehensibility conditions.

Several studies suggest that people find the processing of low comprehensibility messages less than favorable. They rate message processing difficult (Witt, 1976) and unpleasant (Anderson & Jolson, 1980; Chaiken & Stangor, 1987; Eagly, 1976; Eagly & Warren, 1974; Schmidt & Sherman, 1984). One would expect both image and issue processors to rate low audio comprehensibility messages as unpleasant, since both would devote some processing energy to the low comprehensibility audio channel. Also, they should both rate low comprehensibility messages as less favorable than high comprehensibility messages. Thus, the following predictions are offered:

$H3_a$: Both issue and image processors will rate low audio comprehensibility messages more unpleasant than higher audio comprehensibility messages.

$H3_b$: Both issue and image processors will rate low audio comprehensibility messages less favorably than higher audio comprehensibility messages.

Based on research on affect and comprehension, one would expect unfavorable "feelings" engendered by a low comprehensibility message to be transferred to the candidate (Burke & Edell, 1989; Chaiken & Stangor, 1987; Eagly, 1974; Eagly & Warren, 1976; Gardner, 1985; Higgins 1981; Schmidt & Sherman, 1984). According to Higgin's (1981) communication game rule, communicators are expected to be cogent and understandable. If these expectations are violated, the source, the message and the topic are likely to be judged adversely. In the present context, this negativity is likely to influence overall candidate evaluation and vote likelihood. This line of argument suggests the following:

$H4_a$: Both issue and image processors will evaluate the candidate less favorably in low audio comprehensibility conditions.

$H4_b$: Both issue and image processors will be less likely to vote for the candidate in low audio comprehensibility conditions.

Since issue processors will find little comprehensible issue information in a low comprehensibility audio channel (i.e., their primary information channel), they will be forced to redirect (i.e., tune-in another schema) their processing energy to the video channel. This message-induced schema switching should prove frustrating and will

transfer to lower ratings of message, candidate and vote likelihood. Formally:

$H5_a$: Issue processors will rate message and candidate less favorably than will image processors under low audio comprehensibility conditions.

$H5_b$: Issue processors will be less likely to vote for candidates than image processors under low audio comprehensibility conditions.

Furthermore, issue processors will feel they expend more effort processing the low comprehensibility message due to the message-induced schema switching and the necessity of using a less familiar processing orientation. Additionally, the schema switching, use of a less familiar schema, and the ensuing perceived effort expended, should make issue processors feel low comprehensibility messages are more incomprehensible than would image processors. Thus, the following hypotheses are suggested:

$H6_a$: Issue processors will perceive higher amounts of energy expended in attempting to understand low audio comprehensibility messages than will image processors.

$H6_b$: Issue processors will rate low audio comprehensibility messages as less comprehensible than will image processors.

Chapter II

METHODOLOGY

Overview

The study was conducted in two stages. Stage I and Stage II data collection were separated by approximately two weeks. In Stage I subjects' default political schemata were determined by content analyzing their post-message cognitive responses to a series of televised political commercials. In Stage II, subjects viewed televised political commercials either high in audio comprehensibility or low in audio comprehensibility. After viewing the commercials, subjects were asked to list their thoughts, to rate the message and candidate, and to recall and recognize issue information from the commercials.

Subjects

Subjects were 249 students solicited from undergraduate communication classes to participate in Stage I and Stage II of the study. Subjects received extra course credit or fulfilled course requirements for their participation. Those participating as part of

course requirements were given the option of doing an alternate, nonresearch-based class assignment.

Stage I

Procedure

Subjects participated in Stage I in groups ranging in size from 25 to 38. Booklets were distributed before data collection. The following instructions were printed on the front of the booklet and were read aloud by the experimenter:

> We are conducting a study to learn how people process information. There are three parts to the study: First, you will view a series of political commercials. You then will complete a short questionnaire regarding the commercials. Finally, you will be debriefed regarding the study's theory, methodology, and expected findings. The entire study will take approximately 15 minutes of your time.
>
> You may decline to participate or withdraw from the study at any time. All results will be treated with strict confidentiality. You may request a copy of the study's findings by contacting Michael Steele in the Department of Advertising.
>
> If you are willing to participate, please indicate so by both signing AND printing your name in the spaces below.

Subjects were then exposed to a series of extant televised political commercials. The videotaped commercials were shown on a 25" television in full-view of all subjects. After viewing the commercials, subjects were told to turn to the first page of the booklet.

Directions were written at the top of page 1 and were read aloud by the experimenter:

> Now we'd like you to list all the thoughts that you had while viewing the political commercials. Please write one and only one thought in each box. Use as many boxes as you need; two pages have been provided. Remember write only one thought per box.

Students were given 3 minutes to complete the task. The booklets were then collected and subjects were debriefed and dismissed. To protect the integrity of Stage 2, subjects were debriefed as to the essence of the study but not the particulars. They were read the following statement as a debriefing:

> We are examining how commercial type affects the manner in which people process the information from commercials. This will be assessed through a content analysis of the thoughts that you have generated.

Stimulus Material

The stimulus material was a series of nine videorecorded political commercials from a 1984 senatorial race in Mississippi. The nine commercials were chosen from a pool of commercials for the two opposing candidates in the senatorial race. Since subjects' processing schemata (i.e., image vs. issue) would be determined by their post-message cognitive responses to these commercials, it was essential that the commercials contain

both image and issue information. Thus, commercials were selected that contained both references to candidates' issue stands (issue information) and to their behavior, character and personality (image information).

Content Analysis of Post-Message Responses

Each thought was coded as either "image," "issue," or "other" by two trained, independent coders. Image thoughts were defined as those referring to candidates' enduring character, personality, appearance or behavior (Garramone et al., 1991; Johnston, 1986). This category also included evaluations of the candidate based on issue positions (e.g., Winters is crazy to be pro-nuclear). Also, thoughts were coded as "image" if they referred to the commercial's image-orientation (e.g., too much flag waiving stuff).

Thoughts were coded as "issue" if they restated issue information from the commercial, referred to a candidate's role in the political process or referred to a candidate's political performance (e.g., Why does "he" support nuclear build-up?"). Also, thoughts were coded as "issue" if they referred to issue-oriented elements of the commercial (e.g., Winter's stand on education was not spelled-out).

Thoughts were coded as "other" if they did not fit into the "issue" or "image" categories. In cases when several thoughts were strung together into one statement,

coders were instructed to divide the statements' content into individual thoughts and to code each thought according to the protocol detailed above.

To control for chance agreement, intercoder reliability was determined using Scott's pi, which indicated a level of 84.36%. Disagreements were resolved through discussion.

Processing schemata were determined by calculating the percentage of "issue" and "image" thoughts for each subject. (Thoughts coded as "other" were not included in the percentage determination.) Subjects with 60% or greater thoughts in either the "image" or "issue" category were designated as possessing that schemata. For example, a person whose thoughts were 63% "issue" and 37% "image" would be regarded as an issue processor. Subjects with less than 60% in either category (e.g., 45% "image," 55% "issue") were excluded from the analysis for Stage II. The effective sample after Stage I was 219: 122 issue processors and 97 image processors.

Stage II

Procedure

Two hundred and two students returned from Stage I to participate in Stage II of the study. They participated in groups of 22 to 36. Subjects were randomly assigned to one of two conditions: either low audio comprehensibility

or higher audio comprehensibility. Before data collection, subjects were distributed a booklet of dependent measures. On the front of the booklet were the following directions, which the experimenter read aloud:

> We are conducting a study to determine how people process the information contained in political commercials. You will be asked to view a political commercial and then answer a few questions pertaining to the commercial. The entire process should take about 15 minutes.
>
> Your participation is voluntary and you may terminate your participation at any time. All results will be treated with the strictest confidence. You may request a copy of the research findings by contacting Michael Steele in the Department of Advertising.
>
> If you agree to participate, please indicate so by both signing and printing your name in the spaces below.

Subjects sat in full-view of a 25" television on which the videorecorded political commercials were played.

Stimulus Material

Political broadcast commercials were designed for the study. A video track was created from newscasts and movie clips. Visual items were chosen to parallel audio scripts that were written to simulate a congressional race in "another" state. For example, when the audio track discussed hydropower, a scene with turbines and running water was shown. The video track was crossed with a low comprehensibility audio track (Exhibit 1) and a higher

Exhibit 1

Low Comprehensibility Message

Hello, this is Congressman Bob Moran. I'd like to take a few moments to address criticisms of the projected Sonoma Hydroelectric Plant. As you know I've undertaken extensive studies which provide evidence that Sonoma Hydro is a safe, monetarily-wise alternative to the Haskee-Sharm Nuclear Power Plant already under construction. I will give you four reasons why Sonoma Hydro is a fiscally sound alternative to Haskee-Sharm.

First, admittedly there will be a large direct fiscal shortfall commensurate with the curtailment of Haskee-Sharm construction. But this will be ameliorated since the state fiscal revenues increased, in total, by an unprecedented $109.9 million or 6.8% from 1990-1991 to 1991-1992. This represents the net effect of increased petro-chemical taxation, and a reduction in the appropriation base resulting from the State's Negative Supplemental Bill.

Second, $27.3 million or 6% of fiscal 1993's revenues will not be required to cover previously approved state-wide commitments and externally controlled factors. Examples include: no need to annualize prior salary commitments, no increase in state employee fringe benefit packages and formula driven research allocations to private, and academic institutions did not increase as projected.

Third, the increased raw material costs anticipated for the Haskee site through fiscal 1993 have not been realized. In general, costs paralleled the rate of inflation, not the 8% rate of increase as projected by the House Budget Appropriations Committee.

Fourth, contract negotiations between Calcon Construction (site contractors for Haskee-Sharm) and its employees did not provide the compensation escalations anticipated by the House Appropriations Committee. Therefore, projected budgetary reductions and reallocations deemed necessary to offset the results of the collective bargaining will not be required. However, since the reductions and reallocations have already been prescribed and implemented, it would be fiscally prudent to use these funds to reach contractual settlement when the current contract between Calcon and the State is abrogated in favor of the Sonoma Hydro Project.

I hope you will support me in my bid for Congress and that you will support Proposition A -- construction of Sonoma Hydro and curtailment of Haskee-Sharm Nuclear. Yes, we need power, but it's safe power we deserve. Vote Bob Moran for Congress and YES on Proposition A.

comprehensibility audio track (Exhibit 2). The low comprehensibility audio track was complex (e.g., large words and data). The high comprehensibility track was a "translation" of the low comprehensibility track, substituting simpler language and words in place of data.

Message comprehensibility was assessed by application of Flesch's "Reading Ease" formula (Flesch, 1951). Results of the analysis indicated that the less complex message requires an 8th-9th grade reading level for comprehension, whereas the high complexity message requires a 13th-16th grade (i.e., college) reading level.

Dependent Measures

After viewing the political commercial, subjects were instructed to open their booklets to page 1. They read the following directions printed at the top of the page as the experimenter read them aloud:

> Now we'd like you to list all the thoughts that you had while viewing the commercial. Please write one and only one thought in each box. Use as many boxes as you need; several pages have been provided. Remember write only one thought per box.

Subjects were given 3 minutes to complete the task. Subjects then completed the remainder of the dependent measures: candidate evaluation, vote likelihood, message measures (evaluation, comprehensibility, perceived

Exhibit 2

High Comprehensibility Message

Hello, this is Congressman Bob Moran. I'd like to take a few moments to address criticisms of the projected Sonoma Hydroelectric Plant. As you know I've undertaken extensive studies which provide evidence that Sonoma Hydro is a safe, smart money alternative to the Haskee-Sharm Nuclear Power Plant already under construction. I will give you four reasons why Sonoma Hydro is a financially sound alternative to Haskee-Sharm.

First, admittedly there will be a large short range loss of money if the Haskee project is ended. But this loss can be handled since state revenues have increased at a record rate of $109.9 million or a 6.8% increase over 1991-1992. Increased gasoline taxes and a smaller expense budget are the reasons. The smaller expense budget was a result of the State's Negative Supplemental Bill.

Second, $27.3 million or 6% of 1993's revenues will not be needed to cover several items already approved. For example, neither yearly wages or benefits increased for state employees as expected, and research budgets for private and state institutions have not increased.

Third, raw material costs at the Haskee site did not increase for 1992 as expected. Costs remained at the level of inflation, not at 8% as the House Budget Committee expected.

Fourth, Calcon Construction (site contractors at Haskee) was able to keep employee wage increases lower than the House Appropriations Subcommittee projected. Therefore, the amount of money that the state set aside to meet the expected wage increases is not entirely needed. Yet the money has already been diverted from other projects. It would be wise and possible to use this money to fund a settlement with Calcon if the present contract is ended early in favor of the Sonoma Hydro Project.

I hope you will support me in my bid for Congress and that you will support Proposition A -- construction of Sonoma Hydro and stopping construction of Haskee-Sharm. Yes, we need power, but it's safe power we deserve. Vote Bob Moran for Congress and YES on Proposition A.

processing effort, and pleasantness), and issue recall and recognition.

Cognitive responses were coded by two independent coders as either "issue," "visual," or "other." The coding protocol for "image" was the same as that employed in Stage I. Responses were coded as "visual" if they contained information that was available only from the video channel (e.g., Cochran's family is goofy looking."). Thoughts were coded as "other" if they did not fit into the "issue" or "visual" categories. If several thoughts were strung together, coders were instructed to divide the content into separate thoughts and code each according to the protocol outlined above. Intercoder reliability using Scott's pi was 86.21%. Disagreements were resolved through discussion.

Candidate evaluation was determined by subjects' responses to "rate Senator Bob Moran" on thirteen 7-point semantic differential scales. Scale items were chosen using two guiding principles: (1) Items must be appropriate for evaluating a candidate's personality, character and performance. (2) Items must address the dimensions (i.e., evaluative, activity and potency) of attitude (Osgood, Suci & Tannenbaum, 1957). The scales were composed of the following bipolar adjective items: evaluative (dishonest-honest, unintelligent-intelligent, insincere-sincere, friendly-unfriendly, attractive-

unattractive, trustworthy-untrustworthy), activity and potency (decisive-indecisive, weak-strong, warm-cold, knowledgeable-unknowledgeable, unlikeable-likeable, consistent-inconsistent, competent-incompetent). Items were reversed at intervals to prevent response bias. To determine internal consistency of the candidate evaluation scale, Cronbach's alpha was calculated (α = .8058). It was determined that all items contributed to the scale, as alpha did not increase when any item was deleted (Table 1). Hence, a composite candidate evaluation score was calculated for each subject by summing all candidate evaluation items.

Vote Likelihood was assessed by subjects' responses to "how likely is it that you would vote for Bob Moran in an election if you had the opportunity" on a 7-point semantic differential scale ranging from "1" very unlikely to "7" very likely (M = 3.135, SD = 1.434).

Message evaluation was measured by subjects' responses to "rate the message" on five 7-point semantic differential scales selected to tap the evaluative dimension of attitude (Osgood, et al.). The scales were composed of the following adjective sets: reasonable-unreasonable, illogical-logical, well-written-not well written, sensible-not sensible, poor job-good job. Cronbach's alpha was calculated for the message evaluation scale to determine internal consistency (α = .8613). It

Table 1

Candidate Evaluation Scale

Statistics	Items	Mean	Variance	St. Dev.	Alpha
	13	55.4638	80.9457	8.9970	.8058

Scale Item	Alpha if Item Deleted
Item 1	.7928
Item 2	.8016
Item 3	.7943
Item 4	.7924
Item 5	.7962
Item 6	.7946
Item 7	.7825
Item 8	.7906
Item 9	.7924
Item 10	.8027
Item 11	.7906
Item 12	.7872
Item 13	.7891

was determined that all items contributed to the message evaluation scale, since alpha did not increase when any item was deleted from the scale (Table 2). Therefore, a general measure of message evaluation was formed for each subject by summing all message evaluation items.

Processing effort was determined by subjects' responses to "how much effort did you put into understanding issues in the message" on a 7-point semantic differential scale ranging from "1" very little effort to "7" very much effort (M = 3.536, SD = 1.724).

Message pleasantness was measured by having subjects indicate "how pleasant was the commercial" on a 7-point scale, ranging from "1" very unpleasant to "7" very pleasant (M = 2.6492, SD = 1.246).

A manipulation check was administered to determine if the manipulation was successful (i.e., high audio comprehensibility versus low audio comprehensibility). Subjects were asked to rate "how comprehensible did you feel the message was" on a 7-point scale with "1" indicating incomprehensible and "7" indicating comprehensible.

Finally, subjects were asked to recall and recognize information from the commercial (Appendix). Separate scores were derived for items recalled correctly (M = .7765, SD = .3034) and items recognized correctly (M = 3.163, SD = 1.237). Intercoder agreement for the recall

Table 2

Message Evaluation Scale

Statistics	Items	Mean	Variance	St. Dev.	Alpha
	5	16.3665	36.8860	6.0734	.8613

Scale Item	Alpha if Item Deleted
Item 1	.8333
Item 2	.8415
Item 3	.8395
Item 4	.8199
Item 5	.8279

measure was calculated using Scott's pi. It yielded a reliability coefficient of 86.6%. Disagreements were resolved through discussion.

One hundred ninety-two subjects completed all dependent measures and were categorized as either issue processors or image processors in Stage I. (As indicated, subjects not reaching the 60% issue or image criterion in Stage I were excluded from data analyses.)

Data were analyzed in a 2 (Comprehensibility) X 2 (Schema) factorial design. T-tests, two-way analyses of variance and oneway analyses of variance with a priori contrasts were employed.

Chapter III

RESULTS

This chapter presents the results of analyses of the data collected according to the concepts outlined in Chapter 1 and the methods described in Chapter 2. First, results of the manipulation check are presented. Next, results of hypothesis testing will be addressed in the order hypotheses appeared in Chapter 1. Finally, additional data analyses for which no hypotheses were proposed are presented.

Manipulation Check:

A paired t-test demonstrated that subjects in the low audio comprehensibility condition indeed perceived the message as less comprehensible (M = 1.955) than subjects in the higher audio comprehensibility condition (M = 2.721), $t(190) = 3.96$, $p < .05$. (See Table 3.)

Hypothesis 1A:

Hypothesis 1A suggests that image processors will encode more visual information than issue processors. A paired t-test suggested that subjects identified in

Table 3

Manipulation Check Message Comprehensibility

Comprehensibility

Group	Number	Group Means
Low	104	1.9545
Higher	88	2.7212

T Table

	DF	T Value	T Prob.
Comparison	190	3.96	.000

Stage 1 as image processors produced more visually-oriented cognitive responses (M = 2.812) than subjects identified as issue processors (M = 1.667), *t*(190) = 4.52, *p*.<.05. (See Table 4.)

Hypothesis 1B:

This hypothesis predicted that subjects identified in Stage 1 as issue processors would produce more issue-oriented cognitive responses than subjects identified as image processors. As predicted, subjects identified in Stage 1 as issue processors produced significantly more issue-oriented cognitive responses (M = 2.253) than subjects identified as image processors (M = 1.667), *t*(190) = 3.03, *p*.<.05. (See Table 5.)

Hypothesis 2:

Hypothesis 2 predicted that both issue and image processors would encode more visual information under low audio comprehensibility conditions than under higher audio comprehensibility conditions. There is partial support for the impact of comprehensibility on visually-oriented cognitive responses. While issue processors produced more visually-oriented thoughts under low audio comprehensibility conditions (versus higher) (M = 2.040 vs. 1.327), *t*(188) = -2.163, *p*.<.05 as predicted, image processors did not produce significantly more visually-

Table 4: Hypothesis 1A

Visually-Oriented Cognitive Responses by Schema

Schema

Group	Number	Group Means
Image	86	2.812
Issue	103	1.667

T Table

	DF	T Value	T Prob.
Comparison	190	4.52	.000

Table 5: Hypothesis 1B

Issue-Oriented Cognitive Responses by Schema

Schema

Group	Number	Group Means
Image	86	1.667
Issue	103	2.253

T Table

	DF	T Value	T Prob.
Comparison	190	3.03	.003

oriented thoughts under low audio comprehensibility conditions (M = 2.974) than under higher audio comprehensibility conditions (M = 2.633), $t(188) = -.936$, $p > .05$. (See Table 6.)

Hypothesis 3A:

Hypothesis 3A predicted that image and issue processors would rate low audio comprehensibility messages as more unpleasant than higher audio comprehensibility messages. An anova on message pleasantness ratings revealed a main effect for schema. Overall, issue processors rated messages as less pleasant (M = 2.413) compared to image processors (M = 3.062), $F(1,188) = 10.649$, $p < .05$. Furthermore, a main effect for comprehensibility emerged. Low audio comprehensibility messages were rated less pleasant (M = 2.464) than higher audio comprehensibility messages (M = 3.061), $F(1,188) = 4.891$, $p < .05$ (Table 7). However, a oneway analysis with contrasts revealed only partial support for the hypothesis. As predicted, issue processors rated low audio comprehensibility messages as less pleasant (M = 2.020) than higher audio comprehensibility messages (M = 2.727), $t(187) = 2.869$, $p < .05$. Although image processors' mean pleasantness ratings were lower under low audio comprehensibility conditions (M = 2.838) than under higher audio comprehensibility conditions (M = 3.061), the

Table 6: Hypothesis 2

Visually-Oriented Cognitive Responses by Comprehensibility

ANOVA TABLE

Source	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Schema	64.260	1	64.260	22.564	.000
Comprehension	13.030	1	13.030	4.575	.034
Interaction	2.247	1	2.247	.789	.376
Residual	526.853	185	2.848		
Total	604.519	188	3.216		

A Priori Contrasts

C1: Image Proc./Low Comp. vs. Image Proc./Higher Comp.
C2: Issue Proc./Low Comp. vs. Issue Proc./Higher Comp.

Groups	Number	Group Means
Image/Low	38	2.9737
Image/Higher	49	2.6327
Issue/Low	50	2.0400
Issue/Higher	55	1.3273

	Value	S. Error	T Value	T Prob.
C1	-.3410	.3644	-0.936	.351
C2	-.7127	.3294	-2.163	.032

Table 7: Hypothesis 3A

Message Pleasantness by Schema/Comprehensibility

Schema

Group	Number	Group Means
Image	86	3.062
Issue	103	2.413

Comprehensibility

Group	Number	Group Means
Low	87	2.464
Higher	102	3.061

ANOVA TABLE

Source	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Schema	18.924	1	18.924	10.649	.001
Comprehension	8.692	1	8.692	4.891	.028
Interaction	4.123	1	4.123	2.320	.129
Residual	328.768	185	1.777		
Total	361.407	188	1.922		

difference was not statistically significant, $t(187) = .831$, $p > .05$. (See Table 8.)

Hypothesis 3B:

This hypothesis posited that issue and image processors would rate low audio comprehensibility messages less favorably than higher audio comprehensibility messages. Mean message favorability scores indicated a main effect for both schema and comprehensibility. For the schema main effect, issue processors rated messages less favorably (M = 15.211) than image processors (M = 17.784), $F(1,188) = 8.647$, $p < .05$. The comprehensibility main effect indicated that low audio comprehensibility messages were rated less favorably (M = 14.813) than higher audio comprehensibility messages (M = 17.706), $F(1,188) = 11.186$, $p < .05$ (Table 9). The hypothesis received marginal support. Consistent with the hypothesis, issue processors rated low audio comprehensibility messages less favorably (M = 13.140) than higher audio comprehensibility messages (M = 17.091), $t(187) = 3.499$, $p < .05$. Although in the predicted direction, image processors did not rate low audio comprehensibility messages significantly less favorably (M = 17.000) than higher audio comprehensibility messages (M = 18.396), $t(187) = 1.112$, $p > .05$ (Table 10).

Table 8: Hypothesis 3A

Message Pleasantness by Schema/Comprehensibility

A Priori Contrasts

C1: Image Proc./Low Comp. vs. Image Proc./Higher Comp.
C2: Issue Proc./Low Comp. vs. Issue Proc./Higher Comp.

Groups	Number	Group Means
Image/Low	37	3.0612
Image/Higher	49	2.8378
Issue/Low	50	2.0200
Issue/Higher	55	2.7273

	Value	S. Error	T Value	T Prob.
C1	.2234	.2748	0.813	.417
C2	.7073	.2466	2.869	.005

Table 9: Hypothesis 3B

Message Evaluation by Schema/Comprehensibility

Schema

Group	Number	Group Means
Image	86	17.784
Issue	105	15.211

Comprehensibility

Group	Number	Group Means
Low	88	14.813
Higher	103	17.706

ANOVA TABLE

Source	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Schema	288.834	1	288.834	8.647	.004
Comprehension	373.641	1	373.641	11.186	.001
Interaction	76.507	1	76.507	2.291	.132
Residual	6246.045	187	33.401		
Total	7008.346	190	36.886		

Table 10: Hypothesis 3B

Message Evaluation by Schema/Comprehensibility

A Priori Contrasts

C1: Image Proc./Low Comp. vs. Image Proc./Higher Comp.
C2: Issue Proc./Low Comp. vs. Issue Proc./Higher Comp.

Groups	Number	Group Means
Image/Low	38	17.0000
Image/Higher	48	18.3958
Issue/Low	50	13.1400
Issue/Higher	55	17.0909

	Value	S. Error	T Value	T Prob.
C1	1.3958	1.2549	1.112	.267
C2	3.9509	1.1293	3.499	.001

Hypothesis 4A:

Hypothesis 4A predicted that both issue and image processors would evaluate the candidate less favorably in low audio comprehensibility conditions versus higher audio comprehensibility conditions. There was no main effect for schema on candidate evaluation. However, a main effect emerged for comprehensibility. Subjects rated candidates less favorably under low audio comprehensibility conditions (M = 54.023) than under higher audio comprehensibility conditions (M = 56.794), $F(1,188) = 4.376$, $p < .05$ (Table 11). The hypothesis was not supported, however. Although the patterns of means were in the predicted directions, they were not statistically significant. The mean candidate evaluation by issue processors under low audio comprehensibility conditions (M = 53.245) was not significantly lower than under higher audio comprehensibility conditions (M = 55.852), $t(186) = 1.479$, $p > .05$. Furthermore, image processors' mean candidate evaluation under low audio comprehensibility conditions (M = 55.026) was not significantly lower than under higher audio comprehensibility conditions (M = 57.490), $t(186) = 1.276$, $p > .05$ (Table 12).

Hypothesis 4B:

This hypothesis predicted that both image and issue

Table 11: Hypothesis 4A

Candidate Evaluation by Schema/Comprehensibility

Schema

Group	Number	Group Means
Image	86	56.603
Issue	103	54.611

Comprehensibility

Group	Number	Group Means
Low	87	54.023
Higher	102	56.794

ANOVA TABLE

Source	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Schema	169.235	1	169.235	2.155	.144
Comprehension	343.628	1	343.628	4.376	.038
Interaction	.567	1	.567	.007	.972
Residual	14528.829	185	78.534		
Total	15059.185	188	80.102		

Table 12: Hypothesis 4A

Candidate Evaluation by Schema/Comprehensibility

A Priori Contrasts

C1: Image Proc./Low Comp. vs. Image Proc./Higher Comp.
C2: Issue Proc./Low Comp. vs. Issue Proc./Higher Comp.

Groups	Number	Group Means
Image/Low	38	55.026
Image/Higher	49	57.490
Issue/Low	49	53.245
Issue/Higher	54	55.852

	Value	S. Error	T Value	T Prob.
C1	2.4635	1.9308	1.276	.204
C2	2.6070	1.7624	1.479	.141

processors would be less likely to vote for a candidate in low (vs. higher) audio comprehensibility conditions. The data indicated no main effects for schema or comprehensibility on vote likelihood (Table 13). Furthermore, the data did not support the hypothesis, although vote likelihood means were in the predicted directions. Issue processors' vote likelihood ratings were not significantly lower under low (vs. higher) audio comprehensibility conditions (M = 2.840 vs. 3.146), $t(188) = 1.163$, $p > .05$. Additionally, vote likelihood ratings for image processors under low audio comprehensibility conditions (M = 3.237) were not significantly lower than under higher audio comprehensibility conditions (M = 3.347), $t(188) = .339$, $p > .05$ (Table 14).

Hypothesis 5A:

Hypothesis 5A furthered that issue processors would rate the message and candidate less favorably under low audio comprehensibility conditions than would image processors. There was some support for this premise. Issue processors rated the message less favorably (M = 13.140) than image processors (M = 17.000) under low audio comprehensibility conditions, $t(187) = 3.103$, $p < .05$ (Table 15). However, issue processors did not evaluate the candidate significantly lower (M = 53.245) than image processors (M = 55.026) under low audio comprehensibility conditions, $t(186) = .923$, $p > .05$ (Table 16).

Table 13: Hypothesis 4B

Vote Likelihood by Schema/Comprehensibility

Schema

Group	Number	Group Means
Image	87	3.301
Issue	105	3.004

Comprehensibility

Group	Number	Group Means
Low	88	3.013
Higher	104	3.243

ANOVA TABLE

Source	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Schema	4.003	1	4.003	1.952	.164
Comprehension	2.254	1	2.254	1.099	.296
Interaction	.449	1	.449	.219	.640
Residual	385.527	185	2.051		
Total	392.479	188	2.055		

Table 14: Hypothesis 4B

Vote Likelihood by Schema/Comprehensibility

A Priori Contrasts

C1: Image Proc./Low Comp. vs. Image Proc./Higher Comp.
C2: Issue Proc./Low Comp. vs. Issue Proc./Higher Comp.

Groups	Number	Group Means
Image/Low	38	3.237
Image/Higher	49	3.347
Issue/Low	50	2.840
Issue/Higher	54	3.146

	Value	S. Error	T Value	T Prob.
C1	.1101	.3245	.339	.722
C2	.3055	.2627	1.163	.276

Table 15: Hypothesis 5A

Low Comprehensibility Message Ratings by Schema

ANOVA TABLE

Source	DF	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	762.3009	254.1003	7.6075	.0001
Within Groups	187	6246.0046	33.4013		
Total	190	7008.3455			

A Priori Contrast

C1: Issue Proc./Low Comp. vs. Image Proc./Low Comp.

Groups	Number	Group Means
Image/Low	38	17.0000
Issue/Low	50	13.1400

	Value	S. Error	T Value	T Prob.
C1	3.8600	1.2438	3.103	.002

Table 16: Hypothesis 5A

Candidate Evaluation by Schema/Comprehensibility

ANOVA TABLE

Source	DF	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	457.6475	152.5492	1.9119	.1291
Within Groups	186	14841.0946	79.7908		
Total	189	15298.7421			

A Priori Contrast

C1: Issue Proc./Low Comp. vs. Image Proc./Low Comp.

Groups	Number	Group Means
Image/Low	38	55.0263
Issue/Low	49	53.2449

	Value	S. Error	T Value	T Prob.
C1	1.7814	1.9308	.923	.357

Hypothesis 5B:

The proposition that issue processors will be less likely to vote for the candidate than image processors under low audio comprehensibility conditions was tested by this hypothesis. The data did not support the proposition, although vote likelihood means were in the predicted direction. Issue processors' vote likelihood ratings under low audio comprehensibility conditions (M = 2.840) were not significantly lower than image processors' (M = 3.237), $t(188) = 1.29$, $p > .05$. (See Table 17.)

Hypothesis 6A:

Hypothesis 6A proposed that issue processors would perceive expending higher amounts of energy attempting to process low audio comprehensibility messages than would image processors. A oneway analysis with contrasts did not confirm this hypothesis as the mean scores were nearly identical. In low comprehensibility conditions, issue processors did not perceive expending more effort (M = 3.620) than did image processors (M = 3.632), $t(188) = .031$, $p > .05$. (See Table 18.)

Hypothesis 6B:

This hypothesis furthered the notion that issue processors would rate low audio comprehensibility messages as less comprehensible than image processors. Data

Table 17: Hypothesis 5B

Vote Likelihood by Schema/Comprehensibility

ANOVA TABLE

Source	DF	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	6.9523	2.3174	1.1301	.3382
Within Groups	188	385.5268	2.0507		
Total	191	392.4792			

A Priori Contrast

C1: Issue Proc./Low Comp. vs. Image Proc./Low Comp.

Groups	Number	Group Means
Image/Low	38	3.2368
Issue/Low	50	2.8400

	Value	S. Error	T Value	T Prob.
C1	.3968	.3082	1.288	.199

Table 18: Hypothesis 6A

Processing Effort by Schema/Comprehensibility

ANOVA TABLE

Source	DF	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	1.4960	.4987	.1667	.9187
Within Groups	188	562.2488	2.9907		
Total	191	563.7448			

A Priori Contrast

C1: Issue Proc./Low Comp. vs. Image Proc./Low Comp.

Groups	Number	Group Means
Image/Low	38	3.6316
Issue/Low	50	3.6200

	Value	S. Error	T Value	T Prob.
C1	.0016	.3722	.031	.975

supported the hypothesis. Issue processors rated the message as less comprehensible (M = 1.720) than image processors (M = 2.263) under low audio comprehensibility conditions, $t(188) = 1.906$, $p < .05$. (See Table 19.)

Additional Analyses

Although no specific hypotheses were offered, additional analyses were performed to address the impact of schema and comprehensibility on recall and recognition. A 2 (Comprehensibility) X 2 (Schema) analysis of variance was conducted on recall and recognition. Main effects were revealed for both schema and comprehensibility on recall. The main effect for schema indicated that issue processors recalled more information (M = .910) than image processors (M = .643), $F(1,188) = 10.478$, $p < .05$. Furthermore, the main effect for comprehensibility revealed that more information was recalled from higher audio comprehensibility messages (M = .987) than from lower audio comprehensibility messages (M = ..566), $F(1,188) = 4.371$, $p < .05$. No interaction effect emerged. (See Table 20.) Similarly, main effects were revealed for both schema and comprehensibility on recognition. The main effect for schema indicated that issue processors recognized more information (M = 3.507) than image processors (M = 2.821), $F(1,188) = 23.742$, $p < .05$. Furthermore, the main effect for comprehensibility

Table 19: Hypothesis 6B

Message Comprehensibility by Schema/Comprehensibility

ANOVA TABLE

Source	DF	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	37.2793	12.4264	7.0908	.0002
Within Groups	188	329.4655	1.7525		
Total	191	366.7448			

A Priori Contrast

C1: Issue Proc./Low Comp. vs. Image Proc./Low Comp.

Groups	Number	Group Means
Image/Low	38	2.2632
Issue/Low	50	1.7200

	Value	S. Error	T Value	T Prob.
C1	.5432	.2849	1.906	.029

Table 20

Recall by Schema/Comprehensibility

Schema

Group	Number	Group Means
Image	87	.643
Issue	105	.910

Comprehensibility

Group	Number	Group Means
Low	88	.566
Higher	104	.987

ANOVA TABLE

Source	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Schema	38.612	1	38.612	10.478	.000
Comprehension	16.110	1	16.110	4.371	.041
Interaction	5.223	1	5.223	1.417	.203
Residual	693.832	188	3.685		
Total	752.778	191	3.941		

revealed that more information was recognized from higher audio comprehensibility messages (M = 3.479) than from lower audio comprehensibility messages (M = 2.847.), $F(1,188) = 4.305$, $p < .05$. The schema by comprehensibility interaction on recognition was not significant (Table 21).

Table 21

Recognition by Schema/Comprehensibility

Schema

Group	Number	Group Means
Image	87	2.821
Issue	105	3.507

Comprehensibility

Group	Number	Group Means
Low	88	2.847
Higher	104	3.479

ANOVA TABLE

Source	Sum of Squares	DF	Mean Squares	F Ratio	F Prob.
Schema	66.336	1	66.336	23.742	.000
Comprehension	12.027	1	12.027	4.305	.031
Interaction	2.133	1	2.133	.763	.368
Residual	516.841	188	2.794		
Total	597.337	191	3.177		

Chapter IV

DISCUSSION

Research evidence is accumulating which suggests that political schemata may interact with source, message and channel to produce differential effects. By specifying the nature of these processes, political communication scholars hope to gain a keener insight into the nature of political message effects and ultimately the political process. In the present study an information processing approach to an understanding of political message effects was undertaken. The study was designed to examine the mediating role of audience cognitive schemata on mass media message characteristics. Since scholars have decried the dearth of research energy devoted to message comprehension, a variable that has been accorded a central role in communication and persuasion processes, the present research was directed at examining message comprehension within a political information processing framework. Specifically, the focus of the experiment centered on how political cognitive schemata may mediate the effects of message comprehensibility.

Results of the experiment are consistent with the

position that political audience schemata play an important role in the processing of political messages. Furthermore, it is apparent from the current findings that mediating variables, like cognitive schemata, may interact with message, source, and channel variables to produce differential effects. Before discussing the findings of this experiment, the limitations of the study's methods and findings will be considered.

Limitations

A number of limitations detract from the study's contribution value. First, the usual restrictions of a laboratory setting may apply even more in a study of this nature. Subjects were placed in an environment that may have implicitly demanded and facilitated an analytical approach. The control imposed by an experimental setting has the potential to distort and magnify some effects while minimizing others. Therefore, subjects may have judged the messages differently than they would have in a natural context. Furthermore, the sample is homogeneous, college students, with above average cognitive capabilities that probably do not mirror the general electorate. This may limit the generalizability of the research findings.

Moreover, seldom are voters required to judge candidates and make vote decisions based on exposure to a

single political message. The political process normally takes place over a longer period of time with people having the ability to judge candidates based on numerous issue stands, various political messages and debates, and in the context of alternative candidates.

Another probable limitation inherent in the experiment's design makes some of the results even more interesting. Even though there was a statistically significant difference in subjects' perception of the higher and lower comprehensibility messages, the actual difference on a 7-point scale was quite small (1.955 for low vs. 2.721 for high). Despite this limitation, there was still a discernable impact for comprehensibility on numerous variables of interest.

Comprehensibility has been manipulated in various ways by other researchers. For example, low comprehensibility messages have been created by making "dirty" xerox copies, by distorting audio tapes, and by randomly mixing sentence halves. It was felt that the manipulation in the present study came closer to achieving ecological validity. However, the comprehensibility effect might have been even greater had the higher comprehensibility message been perceived as more comprehensible in real terms. The fact that there was some quantification in the higher comprehensibility message may have been enough to lower subjects' comprehensibility ratings and thus the

manipulation's effect.

Many of the hypotheses proposed in this research received some degree of support. In the discussion that follows, main effects for schema and comprehensibility on each variable will be dealt with first and then further analysis for the variables will be addressed. When necessary, additional data analyses were conducted to clarify and elaborate relationships.

Interpretation of Results

Consistency in Processing Orientation. Hypothesis 1A and 1B should be considered more than manipulation checks. Indeed, the results suggest that people's processing orientation are consistent even when faced with messages ranging in levels of comprehensibility. For example, regardless of level of comprehensibility issue processors continued to produce more issue-oriented cognitive responses than image processors, and image processors produced more visually-oriented cognitive responses than issue processors. This places greater emphasis on the receiver as an active information processor, a notion running counter to much traditional communication and persuasion research which considers the receiver a passive message recipient. The results obtained here further broaden the notion of audiences as active in their approach to the mass media (Blumler, 1979; Garramone,

1984; 1985; 1986; Levy & Winhal, 1989). This does not suggest, however, that manipulating message variables will not affect cognitive response production. For example, in the present study, the absolute number of cognitive responses varied according to level of comprehensibility. Thus, comprehensibility should still be regarded as an important variable in the case of cognitive response generation.

It was interesting to note that only issue processors produced significantly more visually-oriented responses in low versus higher comprehensibility conditions (Hypothesis 2). It was expected that issue processors would find difficulty extracting issue information from low comprehensibility messages and would rely more on visual information and, subsequently, produce more visually-oriented cognitive responses. The data support this assumption. However, a similar argument was made for image processors too, but the data did not support this prediction.

While the data for image processors was initially puzzling, the results may be attributable to a methodological artifact. Since the higher comprehensibility message was still low in comprehensibility, image processors may have been producing near maximum visually-oriented thoughts in the higher comprehensibility condition (i.e., there is a

ceiling effect). A greater perceptual difference in comprehensibility may be required to produce a statistically significant difference in visual responses.

The fact that more issue-oriented thoughts were produced in the low comprehensibility condition may not be so intuitive (Hypothesis 1B). However, this too may be explained by virtue of the nature of the cognitive response measures. When calculating total issue thoughts, no differentiation was made between two thoughts about one issue or two thoughts about two independent issues. For example, the fact that a subject may have generated several thoughts complaining about an issue not being clearly articulated would be counted as several issue thoughts. Therefore, a high issue score doesn't necessarily mean subjects were processing more issue information but rather they could be dwelling on a small number of issues.

Message Evaluation and Pleasantness Ratings. Hypotheses 3A and 3B found a main effect for both schema and comprehensibility on message evaluation and pleasantness ratings. Issue processors rated messages lower than image processors. One suggestion for this phenomenon may be attributable to the fact that both messages were low in comprehensibility. Since issue processors are by definition more motivated to process the audio track than image processors, the two messages, both

low in audio comprehensibility, would be expected to engender lower ratings for them than for image processors. The anticipated main effect for comprehensibility showed that lower comprehensibility messages were evaluated lower and were rated as less pleasant. However, this relationship held only for issue processors. Data for image processors were in the same direction although not significant. Again, this may be due to the low comprehensibility of the higher comprehensibility message. Both messages may have been low enough in comprehensibility to turn image processors' attention away from the audio track thus making the audio comprehensibility manipulation less discernable for them. Additional support for this contention may be found in the data for hypothesis 6B. Image processors did not perceive the low comprehensibility message as incomprehensible as did issue processors. A better manipulation of comprehensibility would help answer this question.

Hypothesis 5A was partially confirmed. Issue processors rated the lower comprehensibility messages as less pleasant than image processors. However, they did not evaluate the candidate lower than image processors in the low comprehensibility condition, although means were in the anticipated direction.

Candidate Evaluation and Vote. It was interesting that even though subjects evaluated low comprehensibility

messages lower and as less pleasant, they did not appear to transfer this negative affect to the candidate (Hypothesis 4A and 5A) or the vote (Hypothesis 4B and 5B). However, since there was a main effect for comprehensibility on candidate evaluation, the fact that neither the issue nor image subgroup achieved significance for comprehensibility on candidate evaluation is suspect. At least two important factors may have contributed to the failure to achieve significance. First is the sample size. Once the overall sample was broken into subgroups, the effective sample size was reduced significantly. Due to the smaller sample size, the power of the statistical test was lowered. Secondly, the mean differences would have had to be quite pronounced for the effects to reach significance with the diminished power. This does not appear to be the case, although means were in the intended direction.

Two factors may help explain why the effects of comprehensibility were attenuated for candidate evaluation and vote likelihood: (1) people realize that candidates often don't write their own political messages. Media stories allude to the use of professional speech writers and advertising and public relations firms for speech and message creation. Therefore, the candidate may not have been held fully culpable for the comprehensibility failure. (2) Also, people may intimate that their own

lack of knowledge in a subject area may make the message appear less comprehensible than it actually is. Thus, they may attribute the lack of comprehensibility more to themselves than to the candidate.

Qualitative analysis of cognitive responses lends support for these suppositions. For example, many thoughts were actually questions which asked who the intended audience for the messages was, suggesting the messages were better suited for an educated audience. Furthermore, responses were often directed at a message "creator," not the candidate. Many of the subjects suggested firing the person who wrote the message for the candidate.

Contemporary politics may shed even more insight on the issue. Recently, Ross Perot was chided by critics for his remarks to a black audience at an NAACP meeting. He made allusions to "you people" and "your people" when referring to blacks. Many of these same critics, however, said Perot's problem was not a lack of sensitivity but rather a lack of political sophistication. They suggest he should have relied on the services of a professional speech writer, who would have avoided such inflammatory faux pas.

Processing Effort. There are two potential reasons for image and issue processors reporting similar amounts of effort processing the low comprehensibility message

(Hypothesis 6A). First, there may be a ceiling effect for processing effort. For example, both groups' effort ratings suggest a large amount of effort was expended. There may be a point at which people, regardless of processing orientation, will not (or cannot) devote any more energy to processing the message. A second possibility is that since issue processors find low comprehensibility messages less pleasant, and evaluate them lower and as less comprehensible than image processors, they may have only been willing to allocate so much energy to the current processing task (i.e., the ability was there but the motivation was not). This would suggest that an audience may only go so far in its attempt to decipher a message. Message creators should be aware of this limitation and design messages to stay within the motivational and ability boundaries of their audience.

Additional Analyses. The findings are consistent with the notion of schemata and the theoretical arguments regarding comprehension. That is, issue processors recalled and recognized more information than image processors, and less information was recalled and recognized from low comprehensibilty messages. Although these findings appear intuitively simple, they still have interesting implications. For example, if a politician feels it is imperative for constituents to remember certain information, it might be possible to "prime"

voters to use their issue schemata. This would increase the likelihood that the information would be retained. Moreover, if a politician must relate information that could be injurious (e.g., admission of guilt or misdeed), it might be possible to obfuscate the information with a layer of complexity, thus reducing its retrievability in a later context (e.g., the voting booth).

Summary. Taken as a whole, the results of this study provide additional support for the belief that audience cognitive schemata may affect the processing and acquisition of information from political messages. The research reported here furthers our understanding of how schemata may moderate the effects of message characteristics such as comprehensibility. It would appear from the results that audience schemata are important characteristics to be considered when formulating messages for various media audiences. Much more work needs to be done, however, before this prescription can be readily applied on a work-a-day basis, but the findings do suggest that the approach is conceptually and methodologically viable.

Future Research Priorities

A major task for future research is to articulate a theoretical framework that explains how differences in

people's information processing orientations affect political message and candidate evaluation, the content and organization of political information in memory, and the retrieval and utilization of the information. Broad questions will surely emerge as this conceptual foundation develops. How do processing orientations develop? Can processing orientations be manipulated (i.e., can the audience be tailored or "primed" for the message as well as the message tailored for the audience)? Moreover, as the framework evolves, better operational procedures must be developed and refined for identifying and measuring audience cognitive schemata. Ultimately, this will better enable message creators to tailor their fare for the motivations of their audience.

Certainly more research energy should be devoted to message comprehensibility in the political domain and in other domains. Work should be directed at identifying the dimensions of comprehensibility. For example, levels of quantification as well as verbal difficulty can influence message comprehensibility. It stands to reason that these various dimensions may have substantially different effects on some variables. Moreover, from an experimental design perspective, researchers need to consider whether they are truly manipulating comprehensibility (i.e., low comprehensibility version vs. higher comprehensibility version of the same message) in research designs or

whether they are creating two distinct messages. Differences in reactions to two different messages should not be construed as the result of a comprehensibility manipulation. Furthermore, more work should be directed at achieving higher levels of ecological validity. For example, seldom will communicators have to worry about their sentence halves being randomized.

The fact that subjects did not rate the candidate or vote lower in low comprehensibility conditions has interesting implications. Further research should address the inferential processes in the political process. For example, on what occasions is the candidate held accountable for what is said? In the present case it may be that subjects blamed themselves (i.e., lack of knowledge) or the message for comprehension failure, but it is doubtful that audiences are always so forgiving. However, there may even be contexts in which low message comprehensibility could be positive. If voters equate message complexity with the candidate's intellectual acumen, it could prove to be an asset rather than a liability. To this end, research that identifies the influence of prior knowledge and political involvement on the comprehension process would be a benefit to various disciplines that study message effects.

Research should also address how other variables affect the political communication process. For example,

how would the inclusion of a source attractiveness or expertise manipulation affect the role of processing orientation and the effect of message comprehensibility. Would image processors be influenced more than issue processors by attractive sources in low comprehensibility conditions? Would issue processors be more effected by experts under low comprehensibility conditions than higher comprehensibility conditions? The answers to these questions would extend knowledge in the political domain and would extend the utility of current persuasion theories (see, for example, Chaiken, Liberman & Eagly, 1989; Petty and Cacioppo, 1986). Clearly, only through programmatic research will answers to these questions be addressed in a timely and systematic fashion.

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APPENDIX

Please do your best to answer the following questions:

1. Bob Moran was

   a. In favor of Haskee-Sharm Nuclear
   b. In favor of Sononma Hydro
   c. In favor of Sonoma Nuclear
   d. In favor of Haskee-Sharm Hydro

2. Bob Moran presented how many reasons to support his stand?

   a. 3
   b. 4
   c. 5
   d. 6

3. Bob Moran is running for

   a. Congress
   b. Senate
   c. Mayor
   d. Governor

4. The construction company for the Haskee project is

   a. Corona
   b. Alcor
   c. Coran
   d. Calcon

5. State revenues increased by what percent over 1986-1987?

   a. 3.2%
   b. 4.6%
   c. 6.1%
   d. 6.8%

6. Raw material costs at Haskee increased at

   a. rate of inflation
   b. 8%
   c. 6%
   d. $27.3 million

7. To support Bob Moran's position you'd vote

   a. Yes on Proposition A
   b. Yes on Proposition B
   c. No on Proposition A
   d. No on Proposition B

Please do not turn back to the last page of questions.

8. State revenues for 1987-1988 were

   a. $109.9 million
   b. $23.7 million
   c. $104.6 million
   d. $27.3 million

9. List the two reasons state revenues increased by record rates.

   1. _____

   2. _____

10. If the Sonoma project is adopted, money set aside to fund the anticipated wage increases for Calcon employees could be used to

    _____

11. List two previously approved areas revenues will not have to cover

    1. _____

    2. _____