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An information-processing analysis of the effects of communication modality on opinion change.

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AN INFORMATION-PROCESSING ANALYSIS OF THE EFFECTS OF
COMMUNICATION MODALITY ON OPINION CHANGE

A Thesis Presented

By

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Submitted to the Graduate School of the
University of Massachusetts
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February

1975

PSYCHOLOGY

AN INFORMATION-PROCESSING ANALYSIS OF THE EFFECTS OF
COMMUNICATION MODALITY ON OPINION CHANGE

A Thesis

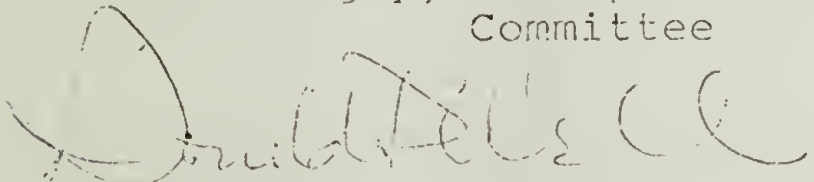
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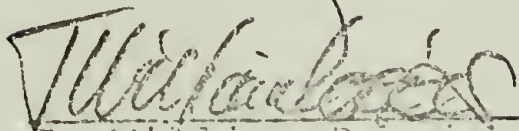
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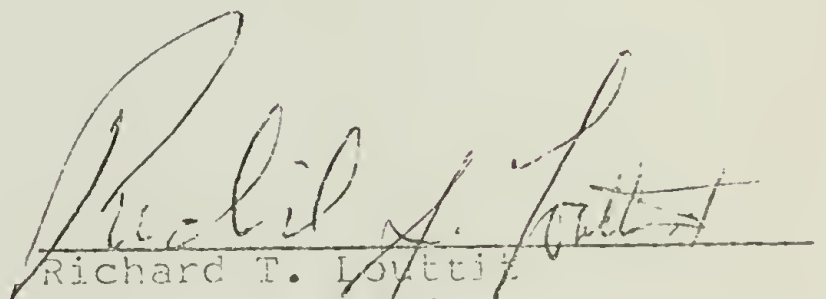
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Abstract

The present research examined the comparative effectiveness of video-taped, oral, and written communications in inducing opinion change. According to an information-processing perspective, it was argued that while the capacity for adequate reception of the message would be greater for written than for video-taped or oral presentations, potential yielding to the contents of the message would be greater for video-taped than for oral or written presentations, respectively. In an experiment designed to test these assumptions, subjects received either an easy or difficult persuasive message via written, oral, or video-taped presentation. Within oral and video-taped conditions, the communicator, by way of his non-verbal behavior, delivered the message either confidently or non-confidently. After receiving the message, subjects gave their opinion on the topic discussed in the communication and responded to other measures. Consistent with hypotheses derived from the information-processing perspective, a significant interaction between media and message difficulty revealed that when easy messages were received, video-taped messages were most persuasive, followed by oral and written messages, respectively; however, when difficult messages were received, written messages were most persuasive followed by video-taped and oral messages, in that order. Strong support was obtained for the hypothesized media differences in reception. While little direct evidence was

obtained in support of the hypothesized yielding differences, that yielding did differ among media conditions in the manner proposed seems plausible in view of the reception and opinion change findings. Overall, the results were interpreted as being generally supportive of the view that an information-processing approach provides a viable framework for understanding modality effects in persuasion. While there was a trend for confident communicators to be more persuasive than non-confident ones, confidence failed to significantly affect opinion change.

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CHAPTER I

BACKGROUND AND LITERATURE REVIEW

An old, relatively unexplicated, and relatively unexplored area within the attitude change field concerns the effects of communication modality in persuasion. Within this area, the most frequently posed question has been whether a communication presented in written form or one presented in spoken form results in greater opinion change. McGuire (1969), in his review of channel variables in persuasion, noted that while the majority of studies comparing spoken and written communications show that the spoken word has more persuasive impact, the general finding with regard to comprehension is that written communications are superior to spoken communications. Adopting an information-processing approach, McGuire suggested that since comprehension should be, in general, positively related to persuasion, the two results together indicated that there must be greater yielding in the spoken than in the written situation. In fact, as McGuire adds, the differential in yielding must be quite sizeable in order to counteract the opposite tendency in comprehension.

The present research was undertaken in order to explore the viability of the information-processing paradigm (McGuire, 1968, 1972) for adequately explaining the effects of communication modality on opinion change. The research focuses on

three communication modalities commonly employed in laboratory studies of opinion change as well as in advertising and other "real-world" persuasion campaigns--written presentation, audio or oral presentation, and audio-visual (e.g., video-taped) presentation of persuasive communications. The effects of these modalities on opinion change will be examined within an information-processing framework. Before this analysis is pursued, however, a review of the pertinent literature is in order.

Modality Effects on Comprehension

A number of studies have examined the differential effects of various modes of presentation (usually oral and written) on comprehension. Young (1953) exposed college-aged subjects to either tape-recorded or written presentation of a series of stories in which relatively unfamiliar words from a standardized vocabulary test were meaningfully employed. Difference scores, obtained from pre- and post-treatment vocabulary tests, were used as a measure of vocabulary growth. Among a number of comparisons made, it was found that the mean gain in vocabulary growth was significantly greater for subjects who had read the stories than for those who had heard the stories. The results indicate that the learning of unfamiliar material may be best facilitated by visual rather than auditory presentation.

Haugh (1952) compared the relative effectiveness of oral and written modes on the comprehension of information

about various minority groups. Subjects were exposed to either a thirty-minute tape-recorded message or were allowed thirty-minutes for reading a transcript of the same message which concerned a particular minority group. Utilizing a within-subjects design, all subjects were exposed to each modality on successive days, though no subject heard and read about the same minority group. Results of a general information test (format not described) on the material presented showed that comprehension was significantly greater in the reading conditions than in the oral conditions. Unfortunately, mode of presentation was not counterbalanced, so that all subjects read a communication on one day and then all heard one the next. Therefore, it is possible that the superiority of written presentation over oral presentation could be contaminated by such factors as novelty or increased attention to the task on the first experimental day when written messages were distributed.

Harwood (1951) compared the effects of written versus oral presentation of material on comprehension using a series of language samples which ranged from "very easy" to "very difficult" in predicted comprehensibility. The series was presented either via tape-recording or printed page to subjects and comprehension was measured by an information test (format not described). Significant differences in comprehension, favoring the reading group over the listening group, were found for language samples graded "fairly difficult" and "difficult" to read, although, taken as a whole,

the series was only insignificantly more comprehensible when presented for reading than when presented for listening.

Beighley (1952) examined the effect of a number of speech variables on comprehension including mode of presentation (tape-recorded versus written), difficulty of material presented, and, in oral conditions, vocal skill (as determined by a panel of judges) of the communicator. Material for presentation consisted of lengthy excerpts from two speeches (on identical topics), one rated "hard" and one rated "easy" to comprehend by a set of predetermined criteria. A multiple-choice test covering information presented in the communications served as the comprehension measure. In addition to the expected finding that easy material was better comprehended than hard material, written presentation of material resulted in significantly greater comprehension than did oral presentation for all possible comparisons. Although reading was superior to listening for both easy and hard speeches, the advantage was greater when hard communications were employed. In oral conditions, the use of skilled orators significantly enhanced comprehension when the material was hard but made no difference when easy material was presented.

Westover (1958) compared the efficacy of listening versus reading, not as modes of presenting material, but as a means of classroom testing. Specifically, performances on objective tests were compared for groups who read test questions or who had test questions (true-false and multiple-

choice items) read aloud to them. Both groups responded to the test questions by marking separate answer sheets. Material covered by the two testing modes was from both textbook reading and classroom discussions. No group differences in performance were found as a function of mode of test administration. This study differs in a number of respects from the previously reviewed experiments--mode of presentation was varied for testing of material rather than for presentation of the material itself; stimulus material consisted of, at most, a few sentences rather than long passages; and, in the oral mode, stimulus sentences could be repeated up to three times if subjects requested rather than being presented only once.

Frandsen (1963) examined the relative effectiveness of live, video-taped, and tape-recorded presentations of speeches on immediate recall of information contained in the ten-minute speeches. Results showed that all modes of presentation gave rise to significant increments in comprehension (as compared to a control group). Although there were no significant differences in comprehension among the three modes of presentation, the trend favored greater comprehension for live over video-taped over tape-recorded presentation.

The above studies seem to support the view that, on the whole, written presentation of material results in greater comprehension than does oral presentation. The Beighley (1952), Harwood (1951), and Westover (1958) studies suggest, however, that the advantage in comprehension which

the written mode seems to confer may be manifested only when material to be presented is of a moderately difficult nature to understand. When minimally difficult material is presented, the advantage which accrues to the written mode may be negligible. In fact, in an early series of experiments comparing listening versus reading, Carver (1935) concluded that the relative effectiveness of written presentation varies directly with the difficulty of the material whereas the effectiveness of listening is greater when the material is simpler. Day and Beach (1950, as reported by McGinnies, 1965) in their review of the literature, concluded that the advantage of the auditory mode was most apparent with meaningful and familiar material, whereas meaningless and unfamiliar material could be presented more efficiently visually.

Two other results of interest emerge from the comprehension studies. The Beighley (1952) study pointed to vocal skill as a factor which can enhance comprehension of spoken communications. But whether a skilled communicator can enhance the comprehensibility of an oral communication so much that it results in greater comprehension than a written communication seems questionable. In the Beighley study, at least, for both easy and hard messages, reading a communication resulted in significantly greater comprehension than hearing the spoken version regardless of whether the speaker was skilled or unskilled. The Frandsen (1963) study, although failing to reach conventional levels of significance, suggests

that live and video-taped presentations of speeches may result in greater comprehension than tape-recorded presentations. This finding seems reasonable in light of research (e.g., Neely, 1956) which indicates that listeners can pick up visual cues from the communicator's lips which aid intelligibility.

Modality Effects on Opinion Change

Reviewers of the literature comparing the persuasive impact of the various media have reached apparently unanimous opinions concerning their relative effectiveness. Thus, it has been claimed that a live address is a more effective persuasive agent than is oral presentation, which in turn is more effective than written presentation (Cantril and Allport, 1935; Schramm, 1954). Hovland (1954), who pointed out the methodological problems of comparing the different modalities, nevertheless concluded that oral presentation is a relatively more persuasive medium than written presentation, a conclusion also reached by McGuire (1969). An examination of the available literature by the present author yields the impression that although there is some experimental research showing that a delivered speech (live address or oral presentation) is more effective than a written one in changing opinions, the evidence is not as overwhelming as one might infer from previous reviews.

Wilke (1934) compared the effects of live, oral, and printed presentations of persuasive messages on the attitudes

of college students toward war, distribution of wealth, birth control, and God. As one group heard a ten-minute speech delivered in person, a second group listened via a loudspeaker system. A third group read a mimeographed version (time allotted not reported) labeled as a text of a speech to university classes. The speaker in the live and loudspeaker conditions made the speeches, and, in the written conditions, distributed the mimeographed material without any introduction from the classroom instructor. Subjects served in an experimental group for one topic and a control group for another. Live presentation resulted in the greatest shift in attitudes (measured by Likert-type scales) toward the positions advocated, with loudspeaker presentation accounting for the next greatest shift, and printed presentation resulting in the least amount of shift. Examining only the shifts of respondents initially neutral on the issues, it was found that both live and loudspeaker presentations resulted in significant shifts whereas the shift due to printed presentation was not reliably different from control group shifts. In terms of mean group shifts, however, none of the shifts were statistically reliable.

Knower (1935, 1936) compared live versus written presentations of persuasive arguments. Pro and con communications were prepared with subjects' (college students enrolled in speech classes) initial opinions on the issue determining which version they received. In the live conditions, the experimenter briefly introduced the speaker by name and

announced that he would talk about prohibition. In the written conditions, the experimenter told subjects that he had recently heard a speech on prohibition which he wanted them to read. Live speeches lasted approximately twenty minutes and subjects in the written condition were allotted twenty minutes in which to read the mimeographed copies. In terms of the percentage of subjects who made statistically significant changes toward the position advocated in the messages, it was found that, on the whole, the change occurring after live presentations was 15 to 25 percent more than the change which occurred in reading groups. It was not reported (nor could it be ascertained from the data presented) whether or not this difference was statistically significant.

The Haugh (1952) and Frandsen (1963) studies, reviewed earlier with regard to comprehension, also examined the relative effectiveness of various media in inducing opinion change. Although Haugh found greater comprehension scores for subjects after reading communications on various minority groups than after listening to the same messages, he found that listening resulted in greater opinion change (in the direction of a more favorable attitude toward minorities) than did reading. However, the difference between the two conditions was of only borderline significance. In Frandsen's study, the opinion data paralleled the comprehension data. That is, live presentation of a speech advocating population control resulted in greater change than did video-taped presentation. As with the comprehension data, however, the

differences between media conditions were not statistically significant.

Cherrington and Miller (1933) compared the relative effect of hearing a lecture and of reading similar material on attitudes toward war. One group of college students heard a speech by Kirby Page and another group read a pamphlet by Sherwood Eddy and Kirby Page entitled "The Abolition of War." Statistically significant differences in attitudes toward war were found between both lecture and reading groups and a control group with the difference for the reading group slightly larger than for the lecture group. This finding, though not significant, is at odds with those so far considered. However, since the pamphlet material was not identical with the material presented in the lecture, the results are indicative only of the relative effectiveness of a particular lecture given by a particular individual and of a specific pamphlet rather than indicative of the relative effectiveness of the two media involved.

McGinnies (1965) investigated the relative effectiveness of oral and written communications on the attitudes of Japanese college students toward the official U.S. position during the Cuban missile crisis (i.e., a naval blockade and insistence that missiles be removed). The persuasive message, adapted from a speech delivered by the U.S. Ambassador to the United Nations, was translated into Japanese and both an oral (tape-recorded by a male Japanese drama student) and a written version were prepared. One week before exposure

to the communications, subjects indicated their opinions on the issue on a Likert-type scale. On the day of the presentations, subjects were told that the experiment concerned a study of reactions to a communication and to a communicator. Each group of subjects then listened to the seven-minute oral communication or were allotted "sufficient" time (averaging slightly over seven minutes) for a single reading of the written message. In neither condition was the source of the communication identified. After exposure, subjects rated the convincingness of the communications, rated the source on a set of bipolar adjective scales, and again responded to the attitude scale. Results showed that subjects in the reading group rated the communication as significantly more convincing and gave significantly more favorable ratings to the communicator than did subjects in the listening group. Further, readers' opinions moved a significant amount in the direction advocated while opinions of those who listened did not. However, a t-test for uncorrelated measures (calculated by the present author from data presented) revealed that the difference between the two conditions was not significant. One should be chary of trying to compare the findings of the McGinnies' study with those of earlier experiments. Not only were McGinnies' subjects drawn from a different culture than those from previous studies, but also the language used (Japanese) in the communication diverges greatly from the English language. McGinnies notes that Japanese is primarily a visual language and that, possibly, a greater wealth of

meaning is conveyed by printed as opposed to spoken Japanese. To look for consistencies in media effectiveness cross-culturally seems premature, if not impossible, especially in light of McLuhan's (1964) theorizing regarding the interactive nature of culture and media.

Whittaker and Meade (1967) conducted a cross-cultural investigation on the effect of the communicator's sex on source credibility and attitude change using both oral (tape-recorded) and written presentations of an identical persuasive communication. Although cross-cultural in nature (and therefore difficult to compare with other studies), the experiment does provide some suggestive information concerning communication modality and opinion change. On the whole, the findings indicate that male sources are viewed as more credible than female sources but that the media is also important relative to the perceived credibility of the source. That is, a male source presenting an oral communication is perceived in several cultures as significantly more credible than a female but, with one exception, when the communication was written, no differences in credibility were apparent. Further, the data also suggest that the communicator, regardless of sex, is perceived as more credible in oral than in written presentations. Although the authors made no comparisons between oral and written communications in terms of their relative effectiveness in inducing opinion change, an examination of the tabled means by the present author revealed no substantial differences (and in all probability no

significant differences) in opinion change as a function of communication modality. However, in terms of the trends that did appear, in five out of six possible comparisons (three countries, male vs. female source) written communications accounted for more opinion change (however slightly) than did oral communications.

Tannenbaum and Kerrick (1954) investigated the effects of different introductory statements or leads on the interpretation of news stories. A comparison of oral versus written presentation was made possible since, in one experiment reported, the effect of headlines on newspaper story interpretation was examined and, in a second experiment (using identical stories), the effect of newscast leads on newscast stories was investigated. The results indicated that different leads (both written and oral) gave rise to differential interpretation of the news stories (both written and oral) and that written presentation appeared to be somewhat more effective (though not significantly) than oral presentation in terms of influencing interpretation.

The picture that emerges from the above studies is a cloudy one. The findings of the Wilke (1934), Knower (1935, 1936), Haugh (1952), and Frandsen (1963) studies are consistent with the notion that the persuasive impact of the various media is greatest for live presentation, followed by video-taped, oral (i.e., tape-recorded), and written presentation, in that order. The statistical evidence in support of this ordering is admittedly weak.

Empirical evidence that runs counter to the ordering is, however, even weaker. The Cherrington and Miller (1933) study which found slightly larger opinion change for reading than for lecture may be discounted since the material presented was not identical in both conditions. Both the Tannenbaum and Kerrick (1954) and Whittaker and Meade (1967) studies failed to find significant differences between reading and oral presentation, although the trend favored reading. The McGinnies (1965) study which also provided evidence against the proposed ordering can be questioned in two respects. Although significant opinion change occurred only in reading groups, the difference between the written and oral conditions was not significant. In addition, the cross-cultural nature of the study (like the Whittaker and Meade experiment) renders interpretation difficult since it seems likely (cf. McLuhan, 1964) that the relative effectiveness of the media may be affected by cultural factors.

Though not imposing as a group, these last four studies do suggest that the relative effectiveness of the various communication modalities on opinion change is not fixed. On the contrary, it seems plausible that the advantage of any one modality over another may depend more highly on various situational factors in persuasion rather than on the inherent properties of the media themselves. Clearly, the most reasonable conclusion that can be drawn from the set of studies which have been reviewed is that more research, particularly research in which potentially operative

situational features are carefully examined, is needed in order to clarify the effects of communication modality on persuasion. Toward this end, and especially in light of the fairly consistent findings regarding comprehension, it seems that a fruitful approach would be to investigate modality effects in persuasion within an information-processing framework.

CHAPTER II
AN INFORMATION-PROCESSING ANALYSIS OF MODALITY
EFFECTS IN PERSUASION

The Information-processing Paradigm

McGuire's (1968, 1972) information-processing paradigm views opinion change, not as a direct response, but as the net outcome of a chain of behavioral steps, each of which has only a certain probability of occurring, but all of which must occur for the production of opinion change. Specifically, for a communication to produce opinion change it is necessary that the receiver attend to it, comprehend the arguments, and yield to what he has comprehended. Attention and comprehension are generally combined into one general step called reception which is usually operationally defined and measured directly by a recall or recognition test of retention of the contents of the persuasive message. Yielding presents a problem in that it cannot be directly measured and is usually inferred from opinion and reception data. However, yielding would seem to be influenced by such things as source characteristics and perceived validity of the message. And, at least indirectly, yielding may be tapped by such measures as source evaluation and counterargument production.

Reception and yielding are both positively related to influencibility so that opinion change is viewed as a positive function of reception and yielding. That is, the

probability of opinion change is equal to the multiplicative product of the probability of effective reception and the probability of yielding to what is received. The general situation that is depicted, then, is that any independent variable (e.g., communication modality) is related to the dependent variable (opinion change) through the mediation of two intervening variables--reception and yielding. The relative importance of each of these mediators should vary across situations. For example, if the message is extremely simple so that, almost without exception, it will be adequately received, reception should contribute negligibly and yielding almost exclusively to the total opinion-change variance in the given situation. On the other hand, given a more complex message, with greater individual difference variation in reception, the role of the reception mediator should contribute relatively more variance to the total situation.

The information-processing paradigm implies that an understanding of the relative effects of various communication modalities on opinion change requires two things. First, we must analyze each modality's peculiar relationship to the reception and yielding mediators. Secondly, we must examine the particular social influence situation in which the modality is used in order to assess the relative importance of the two mediators to the total opinion-change variance in the situation.

The Relationship of Communication Modality to Reception and Yielding

What implications do the various communication modalities have for the two proposed mediators of persuasion, reception and yielding? Extending McGuire's (1969) ideas to the three modalities presently under discussion (video-tape, oral, written) it will be argued that (1) the capacity for adequate reception of material presented via the three channels should be greatest for written presentation, next greatest for video-taped presentation, and least for oral presentation; and (2) the potential for yielding to what is received should be greatest for video-taped presentation, next greatest for oral presentation, and least for written presentation.

Reception

It seems probable that the capacity for adequate reception should be greatest for written presentation, next greatest for video-taped presentation, and least for oral presentation. As previously noted, reception comprises both attention and comprehension. While attention may be of importance in examining modality effects in some contexts (e.g., mass persuasion campaigns), within the laboratory situation it is probably of minimal importance since participants are a "captive audience" and attention to the message (as well as to the experimental task in general) should be relatively high. Therefore, in the laboratory

situation, each modality's relationship to reception is, for all intents and purposes, its relationship to comprehension.

The research reviewed earlier provided fairly consistent evidence indicating the superiority of written over oral presentation in terms of their relative effects on comprehension. Further, one study (Frandsen, 1963) showed slight superiority of video-taped over oral presentation. While no research was reviewed which compared the relative effects of video-taped and written presentation, it seems likely, on the basis of its closer similarity to the oral mode, that video-taped presentation should fall between written and oral presentation in terms of its effect on comprehension.

In addition to the empirical evidence reviewed, a brief analysis of the differences between the experience of reading and listening lends credibility to the proposed ordering. The reading situation allows the receiver the opportunity to reread passages entirely, to glance ahead, and to check back on previously presented material. Printed words, although spatially separated, are experienced more as related items in larger groupings than as isolated units. While reading one is able to fit a word into the immediate context of words which follow it as well as those which have just preceded it, a factor of particular importance in the comprehension of difficult material. In short, the reader to a large extent determines the range and pace of his own

perceptual experiences. By varying his speed, grouping words and phrases, and studying contexts, the reader is able to extract from the written stimulus-situation as much meaning as he possibly can.

In the listening situation, many of the freedoms (e.g., rereading, glancing ahead, checking back) of the reader are denied the listener. Words are separated in time and are experienced more in isolated units than as related items in larger groupings. Though pauses tend to group words into phrases, these groupings are relatively stereotyped and produced by the speaker, rather than the listener. In addition, the listener has the opportunity to fit a word or group of words into the context only insofar as he is able to remember the previous words, a process which should become more difficult as the words and context become less familiar.

Another characteristic of the listening situation is that listeners normally think faster than the average person can talk. It has been estimated that while most speakers move along at about 125 words per minute, our speed of thought, if it could be measured, would be approximately 400 or 600 words a minute (Read, 1972). Thus while listening along with a speaker, there is a great deal of extra "thinking" time, time that may be devoted to thinking about the message or to thinking about extraneous events. Thoughts spent on things other than message contents may serve as internal distractors which could lessen overall comprehension.

The characteristics of the listening situation described above pertain to video-taped as well as oral presentation. The slight potential superiority of video-taped over oral presentation most likely derives from non-verbal cues present in the video-taped mode. As noted earlier, for example, visual cues from the speaker's lips can aid in the intelligibility of material being presented.

In summary, then, given the empirical evidence and the comparative analysis of the listening and reading experience, it seems plausible that the three media order themselves in terms of their relative effects on comprehension in the manner proposed. That is, reception should be best given written presentation, followed by video-taped and oral presentation, in that order. As the information-processing paradigm implies and as the empirical work cited earlier indicates, however, these potential differences in reception may manifest themselves only when relatively difficult and unfamiliar material is presented.

Yielding

Given the comprehension research and the evidence (though meager) indicating the relatively greater persuasive impact of video-taped over oral over written presentation, one would logically infer, from the information-processing framework, that the potential for yielding to what is received should be greatest for video-taped presentation, followed by oral and written presentation, in that order. But since the

ability of the information-processing framework to handle modality effects is the issue in question, it seems necessary to provide some independent evidence (other than the logical inference derived from the model) which would support the proposed ordering of the media with respect to potential differences in yielding. Therefore, the three media of interest should be examined in terms of their possible relationships to factors which could influence yielding. Specifically, the three modalities under investigation will be examined for their possible relationships to (1) the perceived validity of the message and (2) the ethos of the source of the message.

Perceived validity of the message. Carver (1935) provided some support for the view that spoken material may be perceived as more valid than written material. In one experiment he found that greater accuracy in the discrimination of correct, incorrect, and awkward sentences was obtained when presentation was written rather than oral and that, aside from accuracy, individuals tended to be more critical of grammatical faults (i.e., indicated that many more sentences were "grammatically incorrect" or "awkward" than "correct in every way") in material read than in material heard. In a second experiment, lists of words, some meaningful and some fictitious, were presented in either written or oral form and subjects were required to indicate whether they had seen each word before and could define each word if asked. It was found that fictitious words were

judged more authentic (i.e., subjects claimed that they recognized or could define these words) when presented orally than when presented in written form. This finding, and the finding in the first experiment that listeners were more accepting of erroneous forms of grammatical expression than readers suggests that receivers of oral persuasive messages may be less critical and more gullible than receivers of written messages.

One possible explanation for why receivers' critical abilities might be diminished in oral and video-taped modes as opposed to the written mode follows from the nature of the media themselves. In oral and video-taped modes, receivers have no opportunity to review points with which they disagree. In the written mode, on the other hand, receivers have the opportunity to reread points on which they take issue. Reviewing questionable points in a message may lead the receiver to take a more critical view of the message and thus lower its perceived validity.

A second explanation is that certain features of the oral and video-taped presentation situation might serve as distractors which could reduce receivers' critical abilities. In other words, attending to such things as vocal cues (how the speaker says it as opposed to what he says) and visual cues (e.g., speaker mannerisms, gestures, physical appearance) may distract the receiver from critically attending to the message contents. Some tangential evidence for non-verbal cues serving as distractors comes from an experiment

by Maier and Thurber (1968) in which judges tried to assess deception attempts by an interviewee during a role-played interview. Some of the judges watched and heard the interview, some only listened to a tape-recording, and some only read a transcript of the interview. The findings of the experiment showed that judges who listened to a tape-recording or read only a transcript were more accurate in assessing interviewee deception than were the judges who watched and heard the interview. The researchers suggested that the visual cues of the interview situation served primarily as distractors that lowered the accuracy of judgments. If, in fact, vocal cues in oral presentation, and both vocal and visual cues in video-taped presentations, serve to distract receivers from the message contents, then, by interfering with the counterarguing process, diminished critical ability (and thus increased potential yielding) in these situations would be expected (see Baron, Baron, and Miller, 1973 for a review of the distraction literature).

It seems plausible, then, that the perceived validity of the message may be greater when material is presented via video-taped and oral modes than when presented via the written mode. A diminished ability to be critical in the video-taped and oral modes is probably due to both the lack of opportunity to review points in the message with which the receiver takes issue and the probability that non-verbal cues serve a distracting function. If, in fact, non-verbal cues do serve as distractors, we would further expect that,

since both vocal and visual cues are operative in the video-taped mode but only vocal cues operate in the oral mode, critical abilities should be somewhat more diminished in the video-taped as compared to the oral mode. Perceived validity of the message should be positively related to yielding so that, from the foregoing, we would expect greatest potential yielding in the video-taped mode, followed by oral and written modes, in that order.

Ethos. Among the most frequently researched variables in persuasion are those dealing with the source of the message. Typically, research in this area focuses on one aspect of the source, such as his credibility or attractiveness, and looks for covariation between this aspect and opinion change. For present purposes, the more global term of ethos, the image held of a communicator at a given time by the receiver, should suffice. It is assumed that certain traditional source variables, such as credibility, attractiveness, dynamism, etc., all function to determine a communicator's ethos. In this section it will be argued that non-verbal cues in the video-taped and oral modes can operate to enhance yielding in situations where these modes are employed because of the role these cues play in generating a communicator's ethos or image. It should be pointed out, however, that whether or not non-verbal cues do, in fact, serve to enhance a communicator's ethos (and thus increase yielding to his message) depends upon the nature and direction of the source impression that is formed by the receiver

on the basis of these cues. Until this point is discussed in more detail, the term "potential yielding" will be used in order to emphasize that the proposed media differences in yielding are, in fact, dependent on the nature of the source impressions shaped by non-verbal cues.

It is worthwhile to distinguish ethos on a temporal dimension comprised of extrinsic, intrinsic, and final ethos (Anderson and Clevenger, 1963). Extrinsic ethos is the image of the source as it exists prior to exposure to his communication. Intrinsic ethos is the image of the source produced during exposure to the communication and can be influenced both by the verbal and non-verbal messages transmitted by the source. Final ethos is the image of the source at the completion of his communicative act and is the product of the interaction of extrinsic and intrinsic ethos.

Because extrinsic ethos is derived from information the receiver obtains before exposure to the persuasive communication, communication modality would be expected to exert only minor influence at this stage. On the other hand, since intrinsic ethos is derived during exposure to the message, the type of communication modality used may be of great importance in influencing the receiver's image of the source. While in written presentation, intrinsic ethos would derive solely from the verbal (or language) message transmitted by the source, the oral mode adds paralanguage (tone of voice, rate of speech, etc.) as a vehicle for influencing the source's ethos, and the video-taped mode further allows

kinesic cues (i.e., facial expressions, body language) emitted by the source to shape his image for the receiver. Since components of ethos (e.g., credibility, physical attractiveness) have been shown to influence opinion change (for reviews, see Anderson and Clevenger, 1963; McGuire, 1969), and since they most likely do so by influencing the yielding process, any evidence demonstrating that the non-verbal components of oral and video-taped presentation positively or negatively influence perceptions of the source or opinion change itself, would argue strongly for media differences in potential yielding.

It has been shown that individuals can make inferences regarding personality characteristics on the basis of para-language. For example, dynamism and extroversion are inferred from increased pitch variety, a wide array of socially undesirable traits are associated with nasality, and masculinity (for both male and female speakers) and sluggishness are inferred from flatness of tone (Addington, 1968). Status can also be transmitted by vocal cues (Harms, 1961; Nerbonne, 1967, as reported by McCroskey et al, 1971). In the Harms study it was found that adult listeners were quite accurate in identifying a speaker's status and, further, those speakers perceived to be of high status were also perceived as more credible than those perceived to be of low status.

Visual cues are also important in forming impressions of speakers. Fluency in public speaking, a characteristic which may enhance a speaker's persuasiveness, has long been

equated with one's ability to put one word after another in continuous discourse without any observable auditory pauses. However, Horowitz (1965) has reported that many more cues for our perception of fluency are picked up from visual cues (e.g., kinesic cues, appearance, posture) emitted by the speaker than from his verbal and paralinguistic behavior. Studies of eye gaze (e.g., Exline et al, 1966; Exline and Eldridge, 1967) have indicated that statements accompanied by a direct look are perceived as more authentic than those delivered with averted gaze. Further, the speaker in the former condition is perceived as more confident and honest than the speaker in the latter condition.

Non-verbal behavior of the communicator has also been shown to relate directly to persuasiveness. There is some evidence showing that perceived physical attractiveness will enhance one's credibility and thus provide the speaker with a persuasive advantage (Haiman, 1949; Mills and Aronson, 1965; Widgery and Webster, 1969, as reported by McCroskey et al, 1971). Mehrabian and Williams (1969) demonstrated that the following implicit behaviors were associated both with increasing intent to persuade and the perceived persuasiveness of a message: more vocal activity, more speech volume, higher speech rate, more facial activity, higher rate of gesticulation, and more eye contact with the addressee.

London (1973) has examined the persuasiveness of both paralinguistic and kinesic cues. In one experiment, it was reported that paralinguistically expressed doubt can be

accurately decoded by judges and that content analysis of dyadic conversations in which one member emerged as the persuader and one as the persuadee, revealed that the member who emerges as the persuader expresses more confidence (less doubt) paralinguistically than the member who emerges as the persuadee. In a second experiment an actor was instructed to deliver a persuasive message using confident body language, doubtful body language, or neutral (midway between confidence and doubt) body language. Language and paralinguistics was constant across the three body language conditions (soundtrack was dubbed into a video-tape as the actor mouthed the words). Results indicated that judges were accurate in estimating the amount of confidence expressed in each of the tapes and, further, that the subjects who were exposed to the video-tapes were increasingly persuaded as a function of increasing kinesically expressed confidence.

The above studies, taken together, suggest that non-verbal vocal cues in oral presentation and both non-verbal vocal and visual cues in video-taped presentation can indeed influence the perception of the speaker and, in some instances, have a direct relationship to persuasive impact. Since in video-taped presentation there are three channels available to the source with which to enhance his intrinsic ethos, while in oral presentation there are two available channels, and in written presentation only one open channel, it seems reasonable to conclude that the potential for yielding to what is received should be greatest for video-taped

presentation, followed by oral and written presentation, in that order.

As mentioned earlier, however, yielding may not always follow this prescribed order. In the London study, for example, it was shown that the use of doubtful body language resulted in less opinion change than did neutral body language. This suggests that while the potential for yielding may be quite high in video-taped presentation, the use that the source makes of the non-verbal channels available to him and the nature of the non-verbal behavior he emits may be quite important in determining the actual amount of yielding that takes place. It is possible, for example, that a speaker's paralinguistic and kinesic cues might serve to damage his image so much that he would have been more effective had he presented his message in written form.

To summarize the effects of communication modality on yielding, then, it was argued that both media differences in the perceived validity of the message and media differences in shaping a source's image function to make potential yielding greatest in the video-taped mode, next greatest in the oral mode, and least in the written mode. Presumably, differences in the perceived validity of the message are due to the receiver's differential ability to be critical toward the communication. Differential ability to be critical toward the message in the three modes was argued to be due to a combination of the inability of the receiver in video-taped and oral modes to review questionable

points in the message, and the function of vocal cues in the oral mode and both vocal and visual cues in the video-taped mode as distractors which reduce one's critical view of the communication. It was concluded that receivers should be least critical toward the message (which should lead to greater yielding) given video-taped presentation, followed by oral and written presentation, in that order. Presumably, these differences in critical abilities engendered by the three modalities should be fairly stable across situations.¹

It was also argued that differences in yielding favoring video-taped over oral over written presentation could result from the operation of non-verbal cues emitted by the source which might serve to enhance his intrinsic ethos and thus lead receivers to give his message greater weight. But whether the proposed yielding differences actually obtain is contingent upon both the use that the communicator makes of the non-verbal channels available to him and the nature of the non-verbal behaviors he emits. If, in fact, a communicator capitalizes on the available channels and emits image-enhancing non-verbal behaviors, then it would be expected that the proposed yielding differences would hold. If, however, a communicator compromises his position by not taking advantage of available channels or by damaging his image by way of his non-verbal behaviors, then it would be expected that the advantage of the video-taped and oral modes over the written mode in terms of yielding would be dissipated and even negated.

CHAPTER III
AN EXPERIMENTAL INVESTIGATION OF THE VIABILITY OF THE
INFORMATION-PROCESSING PARADIGM FOR UNDERSTANDING
MODALITY EFFECTS IN PERSUASION

Introduction and Predictions

The present research was designed to compare the relative persuasiveness of video-taped, oral, and written modes of presentation within a context in which hypotheses derived from the information-processing paradigm could be tested. Thus, in addition to three levels of communication modality, difficulty of the persuasive message was manipulated by preparing two messages which differed in terms of ease of comprehension. Further, within oral and video-taped conditions, messages (both easy and difficult) were delivered either confidently (utilizing confident paralanguage in oral conditions and both confident paralanguage and body language in video-taped conditions) or non-confidently (utilizing doubtful paralanguage in oral conditions and both doubtful paralanguage and body language in video-taped conditions). A parallel confident versus non-confident manipulation was not feasible within written conditions. In order to create a balanced design, however, the written conditions were subdivided (for both easy and difficult messages) into nominal "confident" and "non-confident" groups. This division has, of course, no theoretical significance since the messages that subjects received in written con-

fidant conditions were identical to those received in written non-confident conditions.

Message difficulty was manipulated in order to investigate the role of the reception mediator in opinion change. Given easy messages, the role of the reception mediator should prove negligible, whereas given difficult messages, the proposed media differences in reception capacity should manifest themselves. The expressed confidence manipulation was designed to tap the yielding process in opinion change. High expressed confidence in delivery of a persuasive message should serve to maximize the proposed differences in yielding between media conditions. Low expressed confidence, on the other hand, should serve to minimize the proposed differences between media conditions and even negate them.

Major dependent variables included opinion change, comprehension of the contents of the persuasive message, counterargument production, and evaluation of the source of the message. Comprehension measures should reflect the operation of reception processes in opinion change while counterargument production and source evaluation measures should reflect the operation of yielding processes in opinion change.

Given the experimental design, a number of predictions, derived from the information-processing paradigm follow:

1. Within oral and video-taped conditions (for both easy and difficult communications), confidently presented messages should result in greater opinion change than

non-confidently presented messages.

2. Given confident presentations and easy communications: (a) Comprehension across media conditions should be roughly equivalent; and (b) Opinion change should be greatest for video-taped presentation, followed by oral and written presentation, in that order.

3. Given confident presentations and difficult communications: (a) Comprehension should be greatest for written presentation, followed by video-taped and oral presentation, in that order; and (b) The superiority of video-taped and oral modes over the written mode in inducing opinion change predicted by Hypothesis 2 should dissipate (and may even reverse) due to the relatively greater role the reception process should play given difficult messages.

4. Given non-confident presentations and easy communications: (a) Comprehension across media conditions should be roughly equivalent; and (b) The superiority of video-taped and oral modes over the written mode in inducing opinion change predicted by Hypothesis 2 should dissipate (and may even reverse) due to diminution (or even reversal) of the proposed yielding differences between media conditions because of expressed non-confidence in delivery of the persuasive message.

5. Given non-confident presentations and difficult communications: (a) Comprehension should be greatest for written presentation, followed by video-taped and oral presentations, in that order; and (b) Opinion change should

be greater for written presentation than for either video-taped or oral presentation. The relative superiority of the written mode should derive from both the greater role played by the reception process given difficult messages and the diminution (or possible reversal) of media differences in yielding due to expressed non-confidence in video-taped and oral presentations. No prediction concerning the relative persuasive effectiveness of video-taped and oral modes will be made given the above conditions. While comprehension should be relatively greater for video-taped presentation than for oral presentation, expressed non-confidence in the two non-verbal channels of the video-taped mode versus only the single non-verbal channel of the oral mode may function to create greater yielding in oral presentation than in video-taped presentation. These opposing tendencies in the reception and yielding processes may serve to cancel out any resulting differences in opinion change between the two conditions.

It should be noted that Hypotheses 2(a) and 4(a) are identical as are Hypotheses 3(a) and 5(a). The rationale for these identical predictions rests on the tenuous assumption that expressed confidence should affect the role of the yielding mediator but not the role of the reception mediator in opinion change. It seems, however, intuitively reasonable that level of expressed confidence may, indeed, affect the reception process such that confidently delivered messages are better comprehended than are non-confidently

delivered messages. No formal hypotheses will be made concerning comprehension differences due to expressed confidence but the possibility that the comprehension data will deviate from the predicted equivalence of hypotheses 2(a) and 4(a), and 3(a) and 5(a), respectively, should be acknowledged.

A final consideration concerns the process which underlies the predicted comprehensibility effects on opinion change. The information-processing paradigm implies that lowering the comprehensibility of a persuasive message should lessen acceptance of the message's conclusion because of the lesser amount of supportive arguments received by the recipient of the communication. Recently, however, Eagly (1974) has implicated the role of negative affect in contributing to reduced opinion change following exposure to a low-comprehensibility message. In a series of experiments it was found that subjects reacted with negative affect to lowered comprehensibility conditions. Eagly concluded, on the basis of correlational evidence, that both the amount of supportive material received and the pleasantness of the conditions of reception contributed to the obtained comprehensibility effects on opinion change. Although her manipulation of comprehensibility was quite different from the one used in the present experiment, a number of dependent measures designed to tap affective reactions to the communications were included in order to further explore the role of negative affect in accounting for comprehensibility effects on opinion change.

Method

Overview

Subjects received either an easy or difficult persuasive message via written, oral, or video-taped presentation. Within oral and video-taped conditions, the message was delivered either confidently or non-confidently. In order to preserve a balanced design, the written conditions were subdivided into nominal "confident" and "non-confident" groups. After exposure to the message, subjects gave their opinions on the topic discussed in the communication and responded to other measures. Thus, the experiment had a 3(Media) X 2(Message Difficulty) X 2(Confidence) between-subjects factorial design. Control subjects indicated their opinion on the topic without receiving a persuasive communication.

Subjects

A total of 274 undergraduate psychology students (127 males and 147 females) from the University of Massachusetts served as experimental subjects. Seven were eliminated because they either suspected an influence attempt (1) or doubted the authenticity of the cover story (6). Fifteen more subjects were randomly discarded in order to equalize the number of subjects in each cell of the design.² An additional 47 students served as opinion control subjects. All subjects received extra credit toward their course grades for participating.

Procedure

Subjects were recruited to take part in a study entitled "Law Student Evaluation", and participated in groups averaging 4 persons in size (range: 2-7 persons). Upon their arrival at the experimental room, the experimenter told subjects that they would be participating in an evaluation study (supposedly) being conducted at the request of the Boston University Law School "where, under a new policy, law students are being trained quite early in their programs to argue legal cases." She added that, if the evaluation were positive, the Law School was hopeful that their students could be of value to the Boston community by working as lawyers in various community legal clinics.

The experimenter next told subjects that in order to evaluate the training program, the psychology department had obtained particular legal cases which were being used in the Law School's training program along with case discussions that had been prepared by a large number of their participating law students. Subjects were told that the available cases were all actual legal disputes that had taken place and represented a wide variety of disputes (e.g., criminal cases, civil suits, arbitration cases) that a lawyer might conceivably take on.

The experimenter then said that for each group of subjects who participated in the evaluation study, a different case was selected for evaluation and that subjects "were, in a way, being asked to play the role of jury members in a

legal case, even though not all the training cases are the kind that would necessarily go to a jury." She then briefly summarized for subjects what they would be doing in the study: reading some background information about a particular legal case; reading, or listening to, or viewing (depending upon media condition) a discussion of the case prepared by one of the participating law students; giving their opinions about the case; and, finally, filling out an evaluation questionnaire concerning various aspects of the case discussion. At the end of this summary, she said that subjects should feel free to be as objective as possible in all their questionnaire responses since the law school would be receiving an overall evaluation of their training program rather than receiving evaluations of individual law students.

After having given the above rationale and summarizing what subjects would be doing, the experimenter announced that "the case that has been selected for today's group is a management-labor dispute," and distributed a hand-out entitled "Background Facts on the Victoria Company Case" (see Appendix I). In brief, the hand-out provided background information concerning a dispute between the Victoria company and a labor union over the company's failure to pay a Christmas bonus to its union employees, an action which the union had protested. The hand-out presented the circumstances leading up to the dispute and stated both the company's position in the case ("that the union's grievance be denied and that union employees should not be paid

compensation for the lost Christmas bonus") and the union's position in the case ("that the company pay compensation to the union workers"). The hand-out further presented three brief arguments which the union had used to support their claim. The hand-out concluded by stating that the union was unable to resolve the grievance to its satisfaction and requested that an independent lawyer be called in to settle the dispute.

Subjects were given approximately 5 minutes to read through the hand-outs after which the experimenter collected them. She then introduced the persuasive messages (see below) by stating, "OK, now I'll pass out transcripts of the law student's case discussion" (in written conditions), or "OK, now I'll turn on the tape-recording of the law student's case discussion" (in oral conditions), or "OK, now I'll turn on the video-tape of the law student's case discussion" (in video-tape conditions). The persuasive messages in oral and video-tape conditions lasted approximately 7 minutes, and subjects in written conditions were allotted 7 minutes in which to read transcripts of the messages.

After the persuasive message (and their collection in written conditions) the experimenter distributed a sheet containing a scale on which subjects indicated their agreement or disagreement with the position taken in the message (see Appendix III). Next, the experimenter distributed a questionnaire which was entitled "The Victoria Company Case: Evaluation Questionnaire". This questionnaire (see

Appendix III) assessed various responses and the success of the manipulations. After responding to this questionnaire, subjects were debriefed as to the true purposes of the study, sworn to secrecy, and excused.

Control subjects were given the same rationale for the study that experimental subjects had received. In summarizing what they would be doing in the study, however, the experimenter told control subjects that they would be reading some background information about a particular legal case and then giving their opinions on the case "before going on to another part of the evaluation." Thus, control subjects simply read the hand-out entitled "Background Facts on the Victoria Company Case" and then gave their opinions. After responding to the opinion scale, control subjects were debriefed, sworn to secrecy, and excused.

Persuasive Communications

Both written versions (easy and difficult) of the persuasive message appear in Appendix II. Each version was approximately 955 words long and argued in favor of the company's position in the case (i.e., that the union's grievance be denied and that union employees should not be paid compensation for the lost Christmas bonus). Both messages included three lengthy arguments in favor of the company's position.

Manipulation of message difficulty. The easy and difficult versions of the persuasive message were designed to

differ only in terms of their ease of comprehension. Whereas the easy version contained approximately 20 words per sentence, the difficult version contained approximately 30 words per sentence. In addition to the more complex sentence structure used in the difficult version, it was also characterized by the use of more unfamiliar and sophisticated vocabulary than was the easy version. For example, one passage from the easy version read as follows:

"Of particular importance is the fact that the company agreed to make the wage increase granted in October of 1972 retroactive to September, 1972. Making the wage increase retroactive cost the company over \$9,300."

The corresponding passage in the difficult version read as follows:

"One particular benefit which should be underscored is that of retroactivity to September, 1972 of the wage accretion granted in October of the same year, a benefit which the company financed and the cost of which exceeded \$9,300."

Aside from differences in sentence length and level of vocabulary used, the content of both versions was essentially identical.

Manipulation of confidence. An amateur actor³ was coached to present both the easy and difficult versions of the communication using either confident paralinguistic (i.e., tone of voice) and body language (i.e., gestures, posture) or non-confident paralinguistic and body language.⁴ After being trained, the four required presentations of the persuasive message (i.e., easy/confident, easy/non-confident, difficult/confident, difficult/non-confident) were video-taped

for use in the video-tape conditions of the experiment while the audio portions of the tapes were used in oral conditions.

It should be noted that in oral conditions the video-tape machine was in an adjoining room, out of sight of subjects. This was done because subjects in this condition expected to hear a tape-recording. In order to ensure that subjects did not suspect that they were listening to something other than an actual tape-recording, a tape-recorder was prominently displayed just beside the entrance to the main experimental room so that subjects saw it as they entered.

Measuring Instruments

Opinions. Subjects' (experimentals and controls) opinions were solicited by having them indicate their agreement with the statement, "The Victoria company should be required to pay compensation to their union employees for the lost Christmas bonus." Subjects responded to this statement on a 15-point scale ranging from "definitely agree" to "definitely disagree." Greater disagreement with the above statement indicated greater agreement with the position taken in the persuasive message.

Counterarguing. The first section of the "case evaluation" questionnaire asked subjects to "List below your thoughts and ideas about the possible effects of supporting the company position and thereby denying the union's grievance in the Victoria company case." Below this statement were a series of lines with the word "Idea" appearing at the

left margin of each line. Subjects were given 3 minutes to work on this section of the questionnaire. In order to determine the number of counterarguments used, subjects' statements were content-analyzed according to procedures adapted from Brock (1967) and Osterhouse and Brock (1970) and refined by Eagly (1974). A statement was scored as a counterargument if, in the opinion of two independent raters ($r = .94$), it indicated a negative consequence of the position taken in the message or constituted a logical attack on some aspect of the message. The total number of arguments (counterarguments or otherwise) listed by each subject was also recorded. A statement was scored as an argument if, in the opinion of two independent raters ($r = .97$), it constituted a complete (rather than fragmentary) thought or idea.

Perception of the source. In the next section of the questionnaire, subjects rated the source of the message (the law student) on 15-point bipolar evaluative scales. Adjectives used were competent vs. incompetent, warm vs. cold, intelligent vs. unintelligent, approachable vs. unapproachable, interesting vs. dull, generous vs. stingy, sincere vs. insincere, friendly vs. distant, unbiased vs. biased, modest vs. arrogant, well read vs. poorly read, good sense of humor vs. poor sense of humor, persuasive vs. unpersuasive, and confident vs. not confident.

Comprehension. A number of comprehension measures were employed. First, subjects were asked to write down as accurately as possible the position taken in the persuasive

message. Two subjects who failed to accurately recall the position advocated in the message were retained in the analyses. Next, subjects were asked to write down a brief summary of each of the arguments that the law student had used to support his position. An argument was scored as correct if, in the opinion of two independent raters ($r = .89$), it accurately summarized one of the arguments contained in the persuasive message. Subjects then responded to a five-item (five alternatives per item) multiple choice test concerning various facts presented in the persuasive message. Following the multiple choice items, subjects responded to six short answer questions concerning the contents of the message. A response to a particular item was scored as correct if, in the opinion of two independent raters ($r = .91$), it appropriately answered the question posed in that item. Subjects' self-reports of difficulty were also solicited by having them indicate, on 15-point scales, how difficult it was to understand the discussion of the case.

Other measures. Subjects were asked, on 15-point scales, how distracted they felt from the content of the case discussion, how much effort they had put into reading (or listening to, or viewing) the case discussion, and how pleasant they found the experience of reading (or listening to, or viewing) the case discussion. They were also asked, again on 15-point scales, to rate the appropriateness of the law student's language for use in a community legal clinic, and to rate the law student himself in terms of

whether he was the kind of person who should work in a community legal clinic.

Finally, subjects were asked to give their own interpretations of the study. Responses to this open-ended question were content-analyzed for suspicion.

Results

The experimental data were explored primarily through the use of analysis of variance although some correlational procedures were also employed. The Hartley-test (cf., Winer, 1971, pp. 206-207) indicated that, for all variables whose effects are reported below, the assumption of homogeneity of variance was adequately met. All analysis of variance effects reaching conventional levels of significance ($p < .05$ or smaller), as well as marginal effects judged to be of theoretical importance, are reported. Pairwise comparisions among treatment means were performed, when indicated, by the Newman-Keuls procedure (cf., Myers, 1972; p. 366).

Manipulation Checks

A 3-way (Media X Message Difficulty X Confidence) analysis of variance indicated that the manipulation of message difficulty was highly successful. Subjects receiving difficult messages reported greater difficulty understanding the message ($\bar{X} = 9.25$ on a 15-point scale on which 1 signified "extremely difficult") than did subjects receiving easy messages ($\bar{X} = 11.40$; $F = 21.30$, $df = 1/240$, $p < .001$).

Further, subjects in difficult message conditions recalled fewer persuasive arguments ($\bar{X} = 1.90$) than did subjects in easy message conditions ($\bar{X} = 2.28$; $F = 12.65$, $df = 1/240$, $p < .001$); got fewer multiple choice items correct ($\bar{X} = 2.85$ vs. $\bar{X} = 3.28$; $F = 8.54$, $df = 1/240$, $p < .005$); and answered fewer short answer items correctly ($\bar{X} = 3.76$ vs. $\bar{X} = 4.32$; $F = 8.25$, $df = 1/240$, $p < .005$). Other effects on self-reported difficulty and the three retention measures are reported below.

The same analysis revealed that confidence had been adequately manipulated: Subjects in confident conditions perceived the source to be much more confident ($\bar{X} = 3.61$ on a 15-point scale on which 1 signified "definitely confident") than did subjects in non-confident conditions ($\bar{X} = 6.18$; $F = 61.73$, $df = 1/240$, $p < .001$). Although adequately manipulated, confidence accounted for relatively few effects on the various dependent measures. Therefore the main body of this section will deal only with effects generated by the Media X Message Difficulty design while effects involving confidence will be reported separately.

Opinions

Dunnett's test (cf., Myers, 1972, p. 367) was used to compare the mean opinion score of each of the 12 experimental groups from the Media X Message Difficulty X Confidence design with the mean opinion score of the control group. The results showed that only the mean of the Oral/Difficult/Non-confident group failed to differ significantly (at $p < .05$

or smaller) from the mean of the control group. All differences were in the direction of greater agreement with the position that had been advocated in the persuasive messages.

Opinion change scores were formed by subtracting from each subject's opinion score the mean of the control group ($\bar{X} = 8.27$). The mean opinion change scores for all experimental conditions appear in Table 1. Analysis of variance on these data yielded the expected Media X Message Difficulty interaction ($F = 7.89$, $df = 2/246$, $p < .001$). Thus, as predicted, when easy messages were received, opinion change was greatest when the message was presented via videotape ($\bar{X} = 4.78$), next greatest when presented orally ($\bar{X} = 3.75$), and least when the message was written ($\bar{X} = 2.94$). However, when difficult messages were received, opinion change was greatest when the message was written ($\bar{X} = 4.73$), next greatest when it was video-taped ($\bar{X} = 3.02$), and least when it was presented orally ($\bar{X} = 2.32$). No other effects on opinion change were significant.

Comprehension and Pleasantness

Analyses of variance. The mean scores for each of the four comprehension measures appear in Table 2. As reported earlier, the manipulation of message difficulty was highly successful: Subjects in the difficult message conditions reported having significantly greater difficulty in understanding the message than did subjects in the easy message conditions; and, in fact, scored lower on the three retention

Table 1
Mean Opinion Change

Media	Confidence	Message difficulty	
		Easy	Difficult
Written	"Confident"	2.97	4.64
	"Non-confident"	2.92	4.83
	Combined	2.94 _{xy}	4.73 _x
Oral	Confident	4.25	2.87
	Non-confident	3.25	1.78
	Combined	3.75 _{xy}	2.32 _{yz}
Video-Tape	Confident	4.97	3.02
	Non-confident	4.59	3.02
	Combined	4.78 _x	3.02 _{xy}

Note. Combined means having a common subscript are not significantly different ($p < .01$) by the Newman-Keuls procedure.

Table 2

Dependent Variables as a Function of Media and Message Difficulty

Variable	Message difficulty					
	Easy			Difficult		
	Written	Oral	Video-tape	Written	Oral	Video-tape
Self-reported difficulty	11.24 [*] _x	11.79 _x	11.17 _x	10.69 _x	8.50 _y	8.57 _y
No. persuasive arguments	2.45 _x	2.21 _x	2.17 _x	2.29 _x	1.74 _y	1.67 _y
No. multiple choice correct	3.55 _x	3.05 _{xy}	3.24 _{xy}	3.10 _{xy}	2.81 _y	2.64 _y
No. short answer items correct	4.57 _x	3.93 _{xy}	4.45 _x	4.21 _{xy}	3.71 _{xy}	3.36 _y
Pleasantness	7.00 [*] _x	6.93 _x	6.50 _x	7.62 _{xz}	9.19 _y	8.62 _{yz}
Distraction	11.33 [*] _v	10.31 _{vw}	9.02 _{wxy}	9.21 _{wxy}	6.79 _z	7.76 _{xyz}

* Lower numbers indicate greater amounts of self-reported difficulty, greater amounts of pleasantness, and greater amounts of distraction.

Note. Within each dependent variable, means having a common subscript are not significantly different ($p < .05$ or smaller) by the Newman-Keuls procedure.

measures than did subjects in easy message conditions.

The media main effect was significant on number of persuasive arguments recalled ($F = 7.12$, $df = 2/246$, $p < .001$), number of multiple choice items correct ($F = 3.11$, $df = 2/246$, $p < .05$), number of short answer items correct ($F = 3.45$, $df = 2/246$, $p < .05$), and was marginally significant on self-reported difficulty ($F = 2.04$, $df = 2/246$, $p = .13$), reflecting the fact that subjects in written conditions reported less difficulty understanding the message and scored higher on the three retention measures than did subjects in either video-tape or oral conditions. Thus, written subjects recalled more persuasive arguments ($\bar{X} = 2.37$) than did oral or video-tape subjects ($\bar{X} = 1.98$ and $\bar{X} = 1.92$, respectively); got a greater number of multiple choice items correct ($\bar{X} = 3.32$ vs. $\bar{X} = 2.94$ (video-tape) and $\bar{X} = 2.93$ (oral)); and answered a greater number of short answer items correctly ($\bar{X} = 4.39$ vs. $\bar{X} = 3.90$ (video-tape) and $\bar{X} = 3.82$ (oral)). Pairwise comparisons among the three media treatment means for each of the above variables showed that the written vs. oral and written vs. video-tape comparisons were significant on number of persuasive arguments recalled ($p < .01$ for both comparisons) and number of short answer items correct ($p < .05$ for both comparisons). The means of the oral and video-tape groups did not differ significantly from each other on either of the above measures, and no significant differences among any of the three treatment means emerged on the multiple choice or self-reported difficulty measures.

The interaction between media and message difficulty was significant on subjects' self-reports of difficulty ($F = 3.18$, $df = 2/246$, $p < .05$) and was marginally significant on number of short answer items correct ($F = 2.02$, $df = 2/246$, $p = .13$). The interaction failed to approach significance on either the number of persuasive arguments recalled ($F = 1.02$, $df = 2/246$) or number of multiple choice items correct ($F < 1.0$, $df = 2/246$) although the patterning of the data was fairly consistent across all four of the comprehension measures. In general, the results of a series of pairwise comparisons (see Table 2) among the 6 treatment means for each of the measures showed that message comprehension was, as predicted, roughly equivalent when easy messages were received, regardless of media level, or when messages were written, regardless of message difficulty. When messages were difficult and presented either orally or via video-tape, however, message comprehension was consistently lower in comparison with other experimental conditions.

Analysis of subjects' ratings of the pleasantness of reading (or listening to, or viewing) the persuasive message revealed that subjects receiving easy messages rated their experience as significantly more pleasant ($\bar{X} = 6.81$ on a 15-point scale on which 1 signified "extremely pleasant") than did subjects receiving difficult messages ($\bar{X} = 8.48$; $F = 21.58$, $df = 1/246$, $p < .001$). The Media X Message Difficulty interaction was of marginal significance on these ratings ($F = 2.24$, $df = 2/246$, $p = .11$) and reflected the fact that pleasantness

ratings were roughly equivalent when easy messages were received, regardless of media level, or when written messages were presented, regardless of message difficulty. However, when messages were difficult and presented either orally or via video-tape, subjects' pleasantness ratings dropped off sharply in comparison to the other experimental conditions (see Table 2 for treatment means and the results of pairwise comparisons).

Correlational findings. Correlations among the three retention measures, pleasantness, and opinion change appear in Table 3. The number of persuasive arguments recalled was positively correlated with opinion change ($p < .001$) as was the number of short answer items correct ($p < .001$) and subjects' pleasantness ratings ($p < .001$). The number of multiple choice items correct was positively but nonsignificantly related to opinion change. Pleasantness correlated significantly with both number of short answer items correct ($p < .001$) and number of arguments recalled ($p < .01$) though the magnitude of these correlations was smaller than those between each of the above variables and opinion change.

Since the three retention measures--number of persuasive arguments recalled, number of multiple choice items correct, and number of short answer items correct--were all moderately intercorrelated (all pairwise correlations were significant at $p < .001$), a retention index was formed for each subject by summing over his or her three retention scores. This retention index was, as each of its component

Table 3

Correlations among Retention Measures, Pleasantness, and Opinion Change

	No. persuasive arguments	No. multiple choice	No. short answers	Pleasantness	Opinion change
No. persuasive arguments	1.000				
No. multiple choice correct	.276***	1.000			
No. short answer items correct	.593***	.301***	1.000		
Pleasantness	.190**	.051	.230***	1.000	
Opinion change	.279***	.126	.341***	.343***	1.000

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

Note. Sample size was 252.

scores were, positively correlated with opinion change ($\underline{r} = .329, \underline{p} < .001$). The correlation between this index and pleasantness was lower in magnitude but still significant ($\underline{r} = .208, \underline{p} < .01$). The partial correlation between opinion change and retention with pleasantness partialled out of both variables was significant ($\underline{r} = .280; \underline{t} = 4.60, \underline{df} = 249, \underline{p} < .001$) as was the partial correlation between opinion change and pleasantness with retention partialled out ($\underline{r} = .297; \underline{t} = 4.91, \underline{df} = 249, \underline{p} < .001$).

Because both the lesser amount of supportive information received and the negative effect generated by difficult messages were postulated to be potential mechanisms which mediate comprehensibility effects on opinion change, multiple regression analyses (using a stepwise procedure) were performed with opinion change as the criterion variable in order to assess the ability of each of the above variables to predict opinion change.

A regression problem including as predictor variables the retention index, the pleasantness rating, and a retention/pleasantness interaction index (formed by multiplying a subject's score on the retention index by his or her pleasantness rating) revealed that retention and pleasantness each contributed to the prediction of opinion change while the interaction index did not. In order to assess the relative importance of these two variables in the prediction of the opinion change data, a stepwise regression problem was performed using only the retention index and the pleasantness

rating as predictors. Pleasantness entered first and the Multiple R at this step was .343. At the second step, the retention index entered and the Multiple R increased to .432. The final regression equation, which included both predictors, significantly predicted the opinion change data ($F = 28.63$, $df = 2/249$, $p < .001$). Further, retention and pleasantness both added significantly to the regression equation ($\beta_{\text{Retention}} = .269$; $F = 21.23$, $df = 1/249$, $p < .001$; $\beta_{\text{Pleasantness}} = .287$; $F = 24.11$, $df = 1/249$, $p < .001$) indicating the fact that retention and pleasantness together predicted the opinion data significantly better than did either one alone. Since the relative importance of predictor variables in explaining variation in the criterion variable can be judged by the magnitude of the squares of their β -coefficients (cf., McNemar, 1969, pp. 195-196), the squared beta weights for the two variables were examined and revealed that pleasantness was only slightly more important in terms of explaining variation in opinion change ($\beta^2 = .082$) than was the retention index ($\beta^2 = .072$).

Although the results of the regression analyses indicated that both the amount of supportive information received (as measured by the retention index) and the affect generated by exposure to the persuasive message (as measured by the pleasantness rating) significantly predicted the opinion data, this procedure does not provide direct evidence that the manipulation of message difficulty affected opinion change via its effect on retention and pleasantness. In order to

obtain more direct evidence concerning the mediation of comprehensibility effects on opinion change, analyses of covariance were performed with opinion change as the dependent variable and either the retention index, the pleasantness rating, or both, as covariates.⁵

The Media X Message Difficulty interaction, which was significant ($p < .001$) in the analysis of variance of the opinion change data, was also significant in an analysis using the retention index as a covariate ($p < .001$), in an analysis using pleasantness as a covariate ($p < .005$), and in an analysis using both the retention index and pleasantness as covariates ($p < .005$). Although the interaction remained significant in all of the above analyses, the strength of the effect (as judged by the magnitude of the F-ratios) was somewhat diminished, especially in the latter two analyses.

This failure of the Media X Message Difficulty interaction to become non-significant in the analyses of covariance is not surprising in light of the fact that the interaction was postulated to be the result of both media differences with respect to yielding and reception rather than simply a product of comprehensibility differences. Analyses of covariance were therefore performed using only subjects in oral and video-tape conditions where analysis of variance had yielded a significant main effect of message difficulty, an effect postulated to be solely the result of differences in comprehensibility. The message difficulty effect, significant ($p < .001$) in the analysis of variance (excluding writ-

ten subjects) of the opinion change data was reduced in strength in an analysis of covariance using the retention index as covariate ($p < .05$), was rendered only marginally significant ($p = .10$) in an analysis employing pleasantness as the covariate, and was non-significant ($F < 1.0$) in an analysis which used both variables as covariates.

Perception of the Source

Although the 14 source ratings were, for the most part, positively (and significantly) correlated with one another, univariate analyses of variance on these data yielded results which were not entirely consistent across variables. The source ratings were therefore factor analyzed (using a varimax rotation) and analyses of variance were performed using subjects' factor scores on each of the resultant rotated factors as dependent variables.

The factor analysis⁶ yielded two rotated factors which, together, accounted for 42 percent of the total variance. Factor loadings for each of the source ratings on each of these factors appear in Table 4. Factor 1 which accounted for 24.70 percent of the variance seems best described as communicator expertise or professionalism. Variables loading most highly on this factor included confident vs. not confident, persuasive vs. unpersuasive, interesting vs. dull, intelligent vs. unintelligent, competent vs. incompetent, and well read vs. poorly read. Factor 2 which accounted for 17.40 percent of the variance seems to represent a different

Table 4

Source Variables and Factor Loadings on "Professionalism/
Expertise" and "Personal Attractiveness/Warmth" Factors

Factor 1: Professionalism/Expertise¹

<u>Source Trait</u>	<u>Factor Loading</u>
Confident vs. Not confident	.812
Persuasive vs. Unpersuasive	.725
Interesting vs. Dull	.693
Intelligent vs. Unintelligent	.634
Competent vs. Incompetent	.569
Well read vs. Poorly read	.543
Sincere vs. Insincere	.443
Friendly vs. Distant	.428
Good sense of humor vs. Poor sense of humor	.373
Warm vs. Cold	.350
Generous vs. Stingy	.245
Approachable vs. Unapproachable	.178
Unbiased vs. Biased	.027
Modest vs. Arrogant	-.210

Factor 2: Personal Attractiveness/Warmth²

<u>Source Trait</u>	<u>Factor Loading</u>
Generous vs. Stingy	.646
Approachable vs. Unapproachable	.632
Friendly vs. Distant	.597
Warm vs. Cold	.589
Modest vs. Arrogant	.530
Sincere vs. Insincere	.432
Good sense of humor vs. Poor sense of humor	.388

continued

Table 4 continued.

<u>Source Trait</u>	<u>Factor Loading</u>
Interesting vs. Dull	.330
Unbiased vs. Biased	.323
Intelligent vs. Unintelligent	.203
Competent vs. Incompetent	.136
Well read vs. Poorly read	.109
Persuasive vs. Unpersuasive	.080
Confident vs. Not confident	-.020

1. Factor 1 accounted for 24.70 percent of the variance
2. Factor 2 accounted for 17.40 percent of the variance

dimension best described as the communicator's personal attractiveness or warmth. Variables loading most highly on this factor included generous vs. stingy, approachable vs. unapproachable, friendly vs. distant, warm vs. cold, and modest vs. arrogant.

Analysis of variance using the "Professionalism/Expertise" factor as the dependent variable revealed that subjects receiving easy messages perceived the source to be more expert and professional ($\bar{X} = -.093$) than did subjects receiving difficult messages ($\bar{X} = +.094$; $F = 4.04$, $df = 1/240$, $p < .05$). Also, a media main effect ($F = 19.77$, $df = 2/240$, $p < .001$) disclosed that subjects in written conditions perceived the communicator to be significantly more expert and professional ($\bar{X} = -.405$) than did either subjects in oral conditions ($\bar{X} = +.128$, $p < .01$) or subjects in video-tape conditions ($\bar{X} = +.278$, $p < .01$). Though subjects in oral conditions perceived the communicator to be more expert and professional than did subjects in video-tape conditions, the difference between their respective ratings was not significant. The Media X Message Difficulty interaction was of marginal significance ($F = 2.03$, $df = 2/240$, $p < .20$) and indicated that while in video-tape and oral conditions, subjects receiving easy messages perceived the source to be more expert and professional than did subjects receiving difficult messages, subjects in written conditions tended to perceive the communicator as somewhat more expert and professional when presented with difficult rather than easy messages.

Analysis of variance using the "Personal attractiveness/warmth" factor as the dependent variable yielded two significant main effects. According to the first of these, subjects receiving easy messages rated the communicator significantly higher on personal warmth and attractiveness ($\bar{X} = -.103$) than did subjects receiving difficult messages ($\bar{X} = +.105$; $F = 3.86$, $df = 1/240$, $p < .05$). The media effect ($F = 9.45$, $df = 2/240$, $p < .001$) indicated that subjects in oral conditions perceived the communicator to be significantly less personally attractive and warm ($\bar{X} = +.313$) than did either subjects in written conditions ($\bar{X} = -.075$, $p < .01$) or subjects in video-tape conditions ($\bar{X} = -.235$, $p < .01$). Although there was the tendency for video-tape subjects to rate the communicator more highly on his personal attractiveness and warmth than written subjects, the difference between the two conditions was not significant. No other significant effects obtained on this variable.

Other Dependent Variables

An analysis of subjects' ratings of how distracted they felt from the content of the persuasive message yielded both a main effect of message difficulty ($F = 24.86$, $df = 1/246$, $p < .001$) and a media main effect ($F = 6.82$, $df = 2/246$, $p < .001$). According to the first of these, subjects receiving difficult messages felt significantly more distracted ($\bar{X} = 7.92$ on a 15-point scale on which 1 signified "extremely distracted") than did subjects receiving easy messages

($\bar{X} = 10.22$). A series of pairwise comparisons on the three media means disclosed that written subjects felt significantly less distracted ($\bar{X} = 10.27$) than did either oral subjects ($\bar{X} = 8.55$, $p < .01$) or video-tape subjects ($\bar{X} = 8.39$, $p < .01$). Finally, the Media X Message Difficulty interaction approached significance on this variable ($F = 2.04$, $df = 2/246$, $p = .13$): Given easy messages, video-tape subjects reported the greatest amount of distraction from message content, followed by subjects in oral and written conditions, respectively. Given difficult messages, however, subjects in oral conditions reported being most distracted, followed by subjects in video-tape and written conditions, in that order (see Table 2 for treatment means and results of pairwise comparisons).

Subjects also rated the appropriateness of the law students' language for use in a community legal clinic and made judgments about whether the law student was the "kind of person" who should work in such a clinic. Analysis of variance on these data yielded a significant message difficulty main effect on both the language ratings ($F = 36.06$, $df = 1/246$, $p < .001$) and the "kind of person" ratings ($F = 13.10$, $df = 1/246$, $p < .001$): Subjects who received easy messages rated the law student's language as significantly more appropriate and judged the law student to be a significantly more appropriate kind of person to work in a clinic than did subjects who received difficult messages. The media main effect was significant on the language ratings ($F = 5.36$, $df = 2/246$, $p < .005$) and was marginally significant on the "kind of

person" ratings ($F = 2.70$, $df = 2/246$, $p = .07$). Thus, subjects in written conditions perceived the source's language to be significantly more appropriate than did subjects in either oral conditions ($p < .05$) or video-tape conditions ($p < .01$), and also judged him to be a more appropriate kind of person to work in a legal clinic than did subjects in the latter two conditions. Finally, the interaction between media and message difficulty was significant on the "kind of person" ratings ($F = 4.92$, $df = 2/246$, $p < .005$) and indicated that, in oral and video-tape conditions, the use of difficult language lowered subjects' judgments that the law student was the right kind of person to work in a legal clinic while in written conditions, message difficulty had no differential effect on these judgments.

Analysis on subjects' self-reports of the effort they expended in reading (or listening to, or viewing) the persuasive message failed to yield any significant effects. Finally, no significant effects emerged from analyses which included as dependent variables number of counterarguments and number of total arguments produced.

Effects of Confidence

A 3-way (Media X Message Difficulty X Confidence) analysis of variance on the opinion data revealed that, although confidently presented messages did result, as predicted, in greater opinion change ($\bar{X} = 3.78$) than did non-confidently presented messages ($\bar{X} = 3.40$), the confidence main effect

failed to approach significance ($F < 1.0$, $df = 1/240$). Nor was it significant in an analysis which excluded subjects in written conditions where the nominal subdivision into "confident" and "non-confident" groups would dampen the strength of any confidence effect ($F = 1.45$, $df = 1/160$). Confidence also failed to interact with any other independent variable to produce an effect on opinion change.

It had been anticipated that subjects' ratings of the source on his professionalism and expertise (factor 1) and on his personal attractiveness and warmth (factor 2) would be affected by his expressed confidence in delivering the persuasive message. Analyses of variance on these measures revealed that while confident communicators were perceived to be significantly more expert and professional ($\bar{X} = -.321$) than were non-confident communicators ($\bar{X} = +.323$; $F = 47.61$, $df = 1/240$, $p < .001$), they were also seen as slightly (though nonsignificantly) less personally attractive and warm ($\bar{X} = +.021$) than were non-confident communicators ($\bar{X} = -.019$; $F < 1.0$, $df = 1/240$). Analysis of subjects' judgments about whether the law student was the right kind of person to work in a community legal clinic indicated that confident communicators were rated more highly on this scale ($\bar{X} = 6.49$) than were non-confident ones ($\bar{X} = 7.21$; $F = 3.88$, $df = 1/240$, $p < .05$). Because of the nature of the experimental design which included the nominal subdivision of written conditions into confident and non-confident groups, an artifactual Media X Confidence interaction was also significant on sub-

jects' professionalism/expertise and "kind of person" ratings. The interaction simply reflected the fact that the tendency for confident communicators to receive more favorable ratings on these two scales was restricted to oral and video-tape conditions.

There was also a tendency for subjects in oral and video-tape conditions to rate their experience as less pleasant and to report greater levels of distraction when exposed to non-confident rather than confident communicators. Because of the nature of the experimental design noted above, this tendency manifested itself in a significant Media X Confidence interaction ($p < .01$ on pleasantness, $p < .05$ on distraction).

The only other effect involving confidence was a significant Message Difficulty X Confidence interaction on subjects' ratings of the law student's language ($F = 4.97$, $df = 1/240$, $p < .05$). Thus, when difficult messages were received, subjects rated the language used by non-confident sources to be significantly more appropriate than the language used by confident sources ($p < .05$) but when easy messages were received, there was no difference in the ratings as a function of communicator confidence.

Sex Differences

Analyses of variance including sex as a factor revealed that there were no differences on opinion change or on any other dependent measure simply as a function of subjects'

sex. Further, on the opinion data, no interactions involving sex as a factor were significant. Sex did, however, interact with other independent variables to produce a number of significant effects on a small subset of dependent variables.

A Sex X Message Difficulty interaction proved significant on subjects' self-reports of difficulty ($F = 7.73$, $df = 1/228$, $p < .01$), on the number of short answer items correct ($F = 7.82$, $df = 1/228$, $p < .01$), and was marginally significant on the number of persuasive arguments recalled ($F = 3.06$, $df = 1/228$, $p = .08$). The patterning of this interaction was consistent across the three measures: Whereas females reported much more difficulty, recalled fewer persuasive arguments, and got fewer short answer items correct when receiving difficult rather than easy messages, males reported only slightly more difficulty when they received difficult as opposed to easy messages and scored essentially the same on arguments recalled and the short answer items regardless of message difficulty. The Sex X Message Difficulty interaction was also significant on subjects' distraction ratings ($F = 7.60$, $df = 1/228$, $p < .01$) and was marginally significant on the pleasantness ratings ($F = 3.32$, $df = 1/228$, $p = .07$). On these measures, while both males and females rated difficult messages as more distracting and less pleasant to receive as opposed to easy ones, the differences between the ratings as a function of message difficulty were greater for females than for males.

Finally, a Sex X Message Difficulty X Confidence interaction was significant on the number of persuasive arguments recalled ($p < .05$), the number of short answer items correct ($p < .05$), and number of counterarguments produced ($p < .01$); and a Sex X Media X Confidence interaction was significant on number of multiple choice items correct ($p < .005$). These effects were, however, of no interpretive importance and are not described further.

Discussion

The principal finding of this study is that the comparative effectiveness of written, oral, and video-taped communications in inducing opinion change varied with message difficulty. As predicted, the significant Media X Message Difficulty interaction showed that when easy messages were received, opinion change was greatest for subjects receiving video-taped communications, next greatest for those receiving oral communications, and least for subjects receiving written communications. However, when difficult messages were received, opinion change was greatest for subjects receiving written communications, next greatest for those receiving video-taped communications, and least for subjects receiving oral communications.⁷ These predicted and obtained findings on the opinion change data were hypothesized to be the result of postulated media differences with respect to both reception of and yielding to the persuasive message. It is therefore necessary to assess the extent to which the data

provided support for the postulated media differences with regard to reception and yielding and, further, whether these differences can adequately account for the opinion change findings.

Media Differences in Reception

It was hypothesized on the basis of previous empirical work and on a comparative analysis of the reading and listening experience, that the capacity for adequate reception of the persuasive message should be greatest for written presentation, followed by video-taped and oral presentations. A slight potential superiority of the video-taped over the oral mode was also predicted and was assumed to derive from non-verbal cues (e.g., visual cues from the speaker's lips) present in the former mode which aid in the intelligibility of material being presented. From an information-processing perspective, it was further hypothesized that these potential media differences with regard to reception would manifest themselves only when relatively difficult material was presented.

The comprehension data were fairly consistent with the first hypothesis. The media main effect was significant on the three retention measures and was marginally significant on subjects' self-reports of difficulty: Overall, subjects in written conditions reported less difficulty understanding the message and scored higher on the three retention measures than did subjects in either video-tape or oral condi-

tions. The latter two conditions did not systematically differ from one another. Thus, no support was obtained for the weaker claim that reception would be superior in the video-taped rather than oral mode.

The comprehension data also proved to be in accord with the second hypothesis, that media differences in reception would manifest themselves only when relatively difficult material was presented. The interaction between media and message difficulty was significant on subjects' self-reports of difficulty and was marginally significant on the number of short answer items correct. Although failing to approach significance on the remaining two comprehension measures (number of persuasive arguments recalled and number of multiple choice items correct), the patterning of the data across all four measures was the same: When easy messages were received, comprehension of the persuasive messages was essentially identical regardless of mode of presentation; however, when difficult messages were received, comprehension was clearly superior for subjects receiving written as opposed to oral or video-taped communications. In fact, the overall superiority of the written mode as compared with the video-taped or oral modes most certainly derived from the written mode's advantage in conveying difficult material.

The subjects' ratings of the pleasantness of reading (or listening to, or viewing) the persuasive message provide additional information regarding media differences in reception. Overall, subjects receiving easy messages rated their

experience as significantly more pleasant than did subjects receiving difficult messages. However, paralleling the comprehension data, the Media X Message Difficulty interaction was marginally significant on the pleasantness ratings:

When easy messages were received, subjects' affective reactions to the persuasive message were essentially identical regardless of mode of presentation; however, when difficult messages were received, the affect generated by exposure to the written communication was clearly more positive than that generated by exposure to oral or video-taped communications.

Both the amount of supportive information received and the affect generated by exposure to the persuasive message were proposed as possible mediators of comprehensibility effects on opinion change. Because both the retention data and the pleasantness data covaried with message difficulty, multiple regression and covariance analyses proved to be of some worth in terms of comparing the viability of the two interpretations. The results of the regression analyses indicated that both the retention scores and the pleasantness ratings contributed significantly to the prediction of opinion change. Analyses of covariance, using data from all subjects, revealed that covarying opinion change scores on pleasantness or on the retention index, or on both, only somewhat diminished the strength of the Media X Message Difficulty effect. This result is not surprising in light of the fact that the interaction was postulated to be the result of both media differences in reception and yielding rather

than simply a product of comprehensibility differences. Analyses of covariance were therefore performed using only subjects in oral and video-tape conditions where analysis of variance had yielded a significant main effect of message difficulty. That a parallel message difficulty main effect did not obtain in the larger analysis (including written conditions) is consistent with the experimental hypotheses under investigation since written subjects, due to their postulated superior potential for comprehending messages, had been expected to be little affected by the manipulation of message difficulty. With written subjects excluded, the effect on opinions due to the message difficulty manipulation should have been a product simply of message comprehensibility and therefore afforded a more direct test of the hypothesis that supportive information or affect (or both) mediate the effect of message comprehensibility on opinion change. In these latter analyses, covarying opinion change scores on subjects' retention scores considerably diminished the strength of this effect; covarying on subjects' pleasantness ratings reduced the effect to one of marginal significance; and covarying on both retention and pleasantness rendered the message difficulty effect nonsignificant.

Though the present study did not orthogonally manipulate the amount of supportive information received and the pleasantness of the conditions of reception, the fact that the pleasantness and retention scores each correlated more highly with opinions than with each other, and the fact that both

regression and covariance analyses implicated both variables as contributors to the opinion change effects, suggests that the amount of supportive information received and the affect generated by exposure to persuasive communications are two relatively independent mediators of the effects of comprehensibility on opinion change.

Media Differences in Yielding

It was hypothesized that both media differences in the perceived validity of the message and media differences in the capacity to convey a communicator's personal image function to make potential yielding greatest in the video-taped mode, next greatest in the oral mode, and least in the written mode. Media differences in the perceived validity of the message were postulated to be the result of receivers' differential abilities to be critical toward the message in the three modes. These differential abilities were argued to be due to a combination of the inability of the receiver in video-taped and oral modes to review questionable points in the message, and the function of non-verbal cues in the oral and video-taped modes as distractors which reduce one's critical view of the communication. Media differences in the capacity to convey a communicator's personal image were argued to be the result of the operation of non-verbal cues available to the communicator in video-taped and oral modes with which to enhance his intrinsic ethos and thus lead receivers to give his message greater weight.

Since yielding is usually inferred from opinion and reception data (cf., McGuire, 1968, 1972), the direct assessment of yielding differences between the three modalities posed a problem. In the study, however, an attempt was made to measure yielding, at least indirectly, by including as dependent variables the source evaluation ratings, the counter-arguing and total arguing measures, and the subjects' self-reported distraction ratings.

It was hoped that the source perception data would be sensitive to the proposed differential effectiveness of the three media with regard to shaping the source's ethos. Analysis of variance on subjects' professionalism/expertise factor score ratings of the source yielded a significant main effect of media but revealed an ordering of the means opposite to what would be expected in terms of the hypothesized media differences: Communicators in written conditions were seen as significantly more professional and expert than were communicators in either oral or video-taped conditions and communicators in oral conditions were perceived to be slightly (though nonsignificantly) more professional and expert than were communicators in video-taped conditions. Subjects' ratings of the source's language and their ratings of the source himself (as to his appropriateness for work in a community legal clinic) followed this same pattern, i.e., higher ratings given to sources in written rather than oral or video-taped conditions. Although communicators in video-taped conditions were, as would be predicted, perceived as

more personally attractive and warm than either their oral or written counterparts, they were rated only nonsignificantly higher on this measure than were written communicators. Further, communicators in written conditions were perceived to be significantly more personally attractive and warm than were communicators in oral conditions rather than vice versa.

The failure of the source perception data to provide definitive evidence in support of the proposed media differences with regard to shaping the source's image becomes understandable in light of the fact that these ratings also reflected the effects of message comprehensibility. The message difficulty main effect was significant on all these measures revealing the fact that communicators associated with easy messages were given consistently higher ratings than were communicators associated with difficult messages. In addition, the Media X Message Difficulty interaction was significant on subjects' judgments of whether or not the law student was an appropriate kind of person to work in a community legal clinic and was marginally significant on the professionalism/expertise ratings. This interaction indicated that while subjects in oral and video-taped conditions rated the source as more appropriate for work in a legal clinic and rated him as more professional and expert when exposed to an easy rather than difficult message, subjects in written conditions tended to respond more favorably to communicators delivering difficult rather than easy mes-

sages. Even on the source data where the interaction did not approach significance, a similar pattern obtained: In oral and video-taped conditions, the communicator delivering an easy as opposed to difficult message was always given higher evaluations, while in written conditions, source's delivering difficult messages were rated as high and sometimes higher on these scales than sources' delivering easy messages. On the basis of these results, it seems plausible that the unexpected tendency for communicators in written conditions to receive generally higher evaluations than communicators in either oral or video-tape conditions, can be ascribed to the fact that the presentation of difficult messages worked to lower subjects' evaluations of the source in oral and video-tape conditions but did not so function in written conditions.

The subjects' self-reported distraction ratings provided qualified support for the claim that non-verbal cues in video-taped and oral modes function as distractors which reduce the message recipient's critical view of the communication. The media main effect was significant on these ratings and reflected the fact that subjects in written conditions reported being significantly less distracted than did subjects in oral conditions who, in turn, reported being less distracted (though nonsignificantly) than did subjects in video-taped conditions. If, in fact, subjects' self-reports of distraction from message content are a valid index to their critical attitudes toward the message, and further, if a reduction in one's critical view of the

message leads to greater yielding, then the significant media effect on the distraction ratings could be interpreted as providing evidence for the proposed media differences in potential yielding. This interpretation of the distraction ratings must, however, be considered tentative in view of two other findings.

The first of these was the failure of the counterarguing measure to be significantly affected by any of the major experimental variables. Although its validity as an index of yielding has been questioned (cf., Miller, 1971), this measure has been used in past research as a rough index of yielding and previous work (e.g., Osterhouse & Brock, 1970) has shown that counterarguing covaries with manipulated distraction. Although the present study did not manipulate distraction, the failure of the counterarguing measure to covary with subjects' self-reported distraction ratings ($r = .10$) must be considered a factor which precludes interpreting the distraction findings as providing unequivocal support for the proposed media differences in yielding.

A second finding of the present study which somewhat obscures interpreting the distraction ratings solely in terms of reflecting yielding differences is the fact that these ratings were also affected by message comprehensibility. The message difficulty effect indicated that subjects in easy conditions reported less distraction than did subjects in difficult message conditions. In addition, the Media X Message Difficulty interaction was of marginal significance

on these ratings: Given easy messages, video-tape subjects reported the greatest amounts of distraction, followed by subjects in oral and written conditions, respectively; however, given difficult messages, subjects in oral conditions reported being most distracted, followed by subjects in video-tape and written conditions, in that order. Thus, although the media main effect revealed an ordering of the distraction means consistent with the hypothesis of greater distraction and therefore greater yielding in video-taped over oral over written modes, the marginally significant interaction indicated that this was the state of affairs only when easy messages were received. When difficult messages were received, the distraction ratings did not so order themselves. It therefore seems reasonable to conclude that subjects' self-reports of distraction were the product of both media differences in yielding (as suggested by the significant media main effect) and the effects of message comprehensibility.

The distraction findings of the present study are interesting in terms of previous research on distraction. Some of this work has shown that distraction increases persuasion (e.g., Osterhouse and Brock, 1970) while other research has shown that distraction decreases persuasion (e.g., Haaland and Venkatesan, 1968). The data obtained in the present study seems consistent with the notion (cf., Eagly, 1974) that distraction is a global variable that under some conditions enhances persuasion by increasing yielding (supposedly by lowering the level of counterarguing) while

under other conditions, inhibits persuasion by interfering with message reception. Thus, in the present study, where adequate reception was virtually assured (i.e., when easy messages were received) the greater amounts of distraction generated by non-verbal cues present in the video-taped and oral modes, served to enhance persuasion in these conditions relative to written conditions by increasing yielding. Where, however, message reception was more problematic (i.e., difficult messages were received), the greater amounts of distraction generated by receiving relatively incomprehensible messages in oral and video-taped conditions, served to inhibit persuasion in these conditions relative to written conditions by interfering with message reception.

To summarize the experimental findings with regard to yielding differences, neither the source perception data nor the counterarguing data provided any support for the proposed media differences in potential yielding. Subjects' distraction ratings provided qualified support for the notion that potential yielding is greatest in the video-taped mode, next greatest in the oral mode, and least in the written mode although the distraction data, like the source perception data, most likely reflected the influence of message comprehensibility in addition to reflecting differences in yielding. On the basis of the qualified support provided by the distraction data, and the problems noted earlier with regard to adequately operationalizing yielding, it would seem premature to accept the null hypothesis of no media dif-

ferences in yielding. Instead, until more direct measures of yielding can be developed, it seems to be of heuristic value to assume that the three media do, in fact, order themselves in terms of potential yielding in the manner proposed.

Comprehension and Yielding as Mediators of Opinion Change

If, as it is usually assumed (cf., McGuire, 1968, 1972), reception of the communication and yielding to its contents are independent systems, then the assumption of media differences in potential yielding together with the obtained comprehension data seem well able to account for the opinion change findings in the present study.

In the experiment, easy messages were designed to be easily comprehended, regardless of mode of presentation. When easy messages were received, it was expected that the role of the reception mediator would be negligible and the role of the yielding mediator of primary importance in determining opinion change. As expected, with easy messages, comprehension was essentially identical across media conditions. Thus, on the basis of the (presumably) greater yielding which occurred in the video-taped and oral modes relative to the written mode, the opinion data confirmed the prediction of greatest change in video-taped conditions, next greatest in oral conditions, and least in written conditions.

Difficult messages were designed to create a situation

in which the role of the reception mediator would take on greater importance in terms of determining opinion change. As expected, it was found that comprehension was superior in the written as opposed to the video-taped and oral conditions. Assuming that media differences in yielding remained stable, the data confirmed the prediction of greatest opinion change in written conditions, next greatest in video-taped conditions, and least in oral conditions.

Confidence Effects

The expressed confidence manipulation was designed to tap the yielding process in opinion change. High expressed confidence in delivery of the persuasive message was expected to maximize the proposed differences between media conditions with regard to yielding. Low expressed confidence, on the other hand, was expected to minimize the proposed media differences and even negate them.

It had been predicted that, overall, confidently presented messages would result in greater opinion change than would non-confidently presented messages because confident communicators would promote greater yielding than would non-confident communicators. Although the trends in the opinion data supported this hypothesis--i.e., confidently presented messages did result in greater change than did non-confidently presented messages--the main effect of confidence failed to reach conventional levels of significance. It should be noted, however, that although non-significant,

the tendency for non-verbal expressions of confidence to enhance persuasion is at least consistent with the results obtained by London (1973).

Some insight into the failure of the present confidence manipulation to significantly affect opinions can be gained by an examination of the source perception data. Consistent with the notion that high expressed confidence would serve to enhance a communicator's image, subjects exposed to the confident communicator rated him to be a significantly more appropriate kind of person to work in a community legal clinic and gave him significantly higher ratings on his professionalism and expertise than did subjects exposed to non-confident communicators. Unfortunately, the confidence manipulation failed to similarly affect the subjects' ratings of the communicator on his personal attractiveness and warmth. In fact, confident communicators were perceived to be slightly (though nonsignificantly) less personally attractive and warm than were their non-confident counterparts. Thus, there appears to have been a somewhat double-barreled quality to the confidence manipulation employed in the present study: Though the confident communicator, by way of his paralinguistic and (in video-taped conditions) kinesic expressions of confidence enhanced his image in terms of being perceived by subjects as very professional and expert, his non-verbal expressions of confidence also led him to be perceived by subjects to be relatively personally unattractive and cold in comparison to non-confident communicators. In light of these

inconsistent tendencies produced by the present manipulation, it is not surprising that confidence failed to significantly affect opinion change.

Another experimental finding further helps to clarify the failure of confidence to significantly affect opinion change. The tendency for subjects in oral and video-tape conditions to rate their experience as less pleasant and to report greater levels of distraction when exposed to non-confident rather than confident communicators could be interpreted as simultaneously working to aid and to hinder the persuasive effectiveness of the confident communicator in the present study. While the role of pleasantness in persuasion has yet to be clearly specified, the "eating while reading studies" (Dabbs and Janis, 1965; Janis, Kaye, and Kirschner, 1965) suggest that greater levels of pleasantness may be associated with greater levels of persuasion. Thus, one reason why confident communicators were slightly more effective than were non-confident communicators might have been that subjects found the experience of listening to and viewing a confident communicator to be more pleasant relative to listening to and viewing a non-confident communicator. On the other hand, the fact that subjects felt more distracted when exposed to the non-confident communicators might have worked to enhance persuasion in these cells relative to the confident cells by leading recipients to take a less critical stance with regard to the non-confident communicator's message.

Conclusions

The present research is generally supportive of the view that the information-processing paradigm (McGuire, 1968, 1972) provides a viable framework for adequately explaining modality effects in persuasion. According to this framework, the relative persuasiveness of any particular modality must be assessed first by analyzing the modality's peculiar relationship to reception and yielding processes, and second by analyzing the particular social influence situation in which the modality is employed in order to assess the relative importance of reception and yielding in contributing to the total opinion change variance in the situation.

In the present investigation of the comparative effectiveness of written, oral, and video-taped presentations of persuasive communications, it was argued that the capacity for adequate reception of information would be greater for the written mode than for either the oral or video-taped mode, but that the potential to yield to the persuasive message would be greater for video-taped and oral modes than for the written mode. On the basis of these assumptions, it was predicted that given a situation in which relatively easy-to-comprehend messages were employed, persuasion would be greatest for video-taped and oral communications and least for written communications. On the other hand, in a situation in which difficult-to-comprehend messages were employed, it was predicted that written communications would result in

relatively greater persuasion than either video-taped or oral communications. The results of the study indicate that these predictions were accurate.

The comprehension data provided strong support for the proposed media differences with regard to reception. Thus, the present research strongly supports the traditional importance that has been assigned to reception processes in persuasion (e.g., Hovland et al, 1953): Manipulating the difficulty of the persuasive message had a strong and consistent effect on opinion change. It should be further noted that the study supports Eagly's (1974) contention that the mechanism through which message comprehensibility produces an effect on opinion change is not only a product of the amount of supportive information received. Using a relatively less radical manipulation of message comprehensibility, the present study replicated her correlational finding that the negative affect generated by attempting to understand relatively difficult material may also be a mediator of comprehensibility effects in persuasion.

Although the data were inconclusive in terms of providing unequivocal support for the proposed media differences in yielding, that the media do differ with regard to potential yielding seems to be a reasonable assumption given both the reception and opinion data obtained in the study. The present research does, however, illuminate the need for proponents of the information-processing approach to develop more precise conceptual definitions of yielding as well as more direct measures of this process.

Appendix I

Preliminary Information About Topic Discussed
in the Persuasive Message

BACKGROUND FACTS ON THE VICTORIA COMPANY CASE

For a period of at least nineteen years prior to 1972, the Victoria company has paid an annual Christmas bonus to all its employees.

In July of 1972, the union won representation rights for the previously non-union production and maintenance employees of the company and they were duly organized. After negotiation over wage levels and employee benefits, a contract was signed between the company and the union in October of 1972 with the wage provisions made retroactive. The final contract stated that changes in the "permanent wage structure" (e.g., wage levels, health, and injury benefits) agreed to in the contract could be made only by joint company-union decisions.

During the early stages of negotiations, the union proposed the following clause, known as "Paragraph 80":

"It is agreed that extra benefits presently in effect and not covered by this contract will continue and may not be eliminated or changed except by joint company-union agreement."

The union demanded inclusion of Paragraph 80 in the contract until late in the negotiations when it was dropped from the final version of the contract.

The company distributed a Christmas bonus in 1972 to all its non-union employees but did not distribute any Christmas bonus to its union employees.

The union protested the failure of the company to pay a Christmas bonus to the union employees, and demanded that the company pay compensation to the union workers. Victoria company officials maintained that the union's grievance should be denied and that union employees should not be paid compensation for the lost Christmas bonus. The union leaders maintained that (1) the bonus had been incorporated into the permanent wage structure because it had been given every year and therefore, according to the contract, could not be eliminated by the company without union approval; (2) the negotiations which led to the contract had been based on the

assumption that the bonus was permanent; and (3) the withdrawal of the bonus was an irresponsible act designed to eliminate most of the small employee gains that had been made as a result of the union contract. The union was unable to resolve the grievance to its satisfaction and requested that an independent lawyer be called in to settle the dispute. The company agreed to this request and agreed to abide by the lawyer's decision.

Appendix II

Easy and Difficult Versions of the Persuasive Message

Easy Version

Having reviewed the Victoria case fully, I am forced to conclude that the company position is justified. I recommend that the union's grievance be denied and that union employees should not be paid compensation for money lost when the Christmas bonus was withheld. This conclusion is based on the following points:

Although the company has paid a Christmas bonus for a number of years, the total amount distributed and the amount received by individual employees has varied from year to year. In any given year, the decision about whether to give a bonus at all and the decision on the total amount to be given has been entirely up to President Hartman and his brother who is vice-president of the company. No other company officials have ever participated in this decision. The union claims that the bonus had become part of the permanent wage structure and therefore, according to the union contract, could not be eliminated except by joint company-union agreement. This claim is incorrect. The fact that the bonus amount depended entirely on the yearly judgment of President Hartman and his brother makes it a gratuity or extra benefit. This extra benefit was clearly not a permanent part of the wage structure and the company had a perfect right to make bonus decisions alone, without consulting the union.

The company position is also favored by the following facts. Prior to being unionized in 1972, company employees had received yearly wage increases averaging six cents per hour. This figure is far below the company's estimate that the 1972 increase totaled nineteen cents per hour. This increase was a direct result of conditions agreed to in the union contract. Of particular importance is the fact that the company agreed to make the wage increase granted in October of 1972 retroactive to September, 1972. Making the wage increase retroactive cost the company over \$9,300. The company estimates that the total cost of the 1972 union contract will average thirty-five cents per hour over the two-year period covered by the contract. Because of this cost, the company could not afford to distribute a Christmas bonus to their union employees. The union claims that the extra cost to the company due to the union contract should not have been a factor in the decision to eliminate the Christmas bonus. The union argues that this cost was justified since for many years the company had been underpaying their employees

in comparison to similar companies. This union argument is irrelevant to the Christmas bonus issue. Whether or not the company has, in the past, underpaid its employees, does not change the fact that in 1972, because of the cost of the union contract, the company was unable to afford payment of a Christmas bonus to its union workers. It is true that a Christmas bonus was paid to the company's non-union workers, including office, executive, and sales employees. But these workers did not receive any of the benefits which the union workers got as a result of the 1972 union contract. There was no intention of trying to eliminate union gains made in the contract. The company simply faced a different situation than it had ever faced before.

Also favoring the company position is the fact that the 1972 union contract contained no statements referring directly to the Christmas bonus. Further the contract included no clause which called for continuation of pre-unionization benefits such as the Christmas bonus. It is true that the union had initially insisted that such a clause be included when it proposed that Paragraph 80 be written into the contract. The union demanded that Paragraph 80 be included in the contract at the beginning of the long contract negotiations. The company repeatedly objected to Paragraph 80's inclusion. Finally, the union gained substantial benefits such as improved health, death, and injury benefits in addition to a large wage increase. After these substantial gains, the union willingly agreed to withdraw Paragraph 80 from the contract. This description of the contract negotiations cannot be questioned. The union argues as if Paragraph 80 were part of the final union contract. This is not the case. The company argues that during negotiations, the union by withdrawing Paragraph 80 had willingly given up its demand for continuation of pre-unionization benefits such as the Christmas bonus. The company argument is correct. Therefore, the company was definitely not obligated to pay a Christmas bonus to its union workers.

In summary, then, my review of the case leads me to favor the company position. I recommend that the union's grievance be denied and that union workers should not be paid compensation for the money they lost when the Christmas bonus was withheld. My conclusion is based on the following three facts: (1) the fact that the Christmas bonus is an extra benefit rather than part of the permanent wage structure makes bonus decisions the exclusive right of the company, (2) payment of the bonus to union workers was impossible in 1972 because of the financial burden which the union contract placed upon the company, and (3) paragraph 80, which would have obligated the company to pay a Christmas bonus to union workers, had been removed from the contract so that, legally, the company could eliminate this benefit.

Difficult Version

Having reviewed the Victoria case fully, I am compelled to conclude that the company position is justified. I recommend that the union's grievance be denied and that union employees should not be made whole for dollars lost when the Christmas bonus was withheld. This conclusion is based on the following premises:

Although the company has disbursed a Christmas premium for a number of years, the total amount apportioned by the company as well as the amount received by individual employees has been extremely variable. In any calendar year, the determination of whether a bonus was to be given at all, and if so, calculation of the aggregate amount, was up to the discretion of President Hartman and his brother who is vice-president of the company. No other company officials have ever taken part in this determination. Thus, there is no validity to the union claim that this bonus had been integrated into the permanent wage structure and thus constituted a policy requiring joint company-union action; rather, the fact that the premium amount was contingent upon the annual subjective judgment of the two top company officials converts it into a gratuity on which the management may legally exercise action unilaterally.

The company's position is also favored by the following facts. In all previous years, employees of the company received wage increases far inferior to those attained from the contract negotiations of 1972. In these years, the mean wage appreciation per annum amounted to six cents per hour, a figure far below the company's appraisal of wage and fringe increments for the 1972 contract year constituting nineteen cents per hour. One particular benefit which should be underscored is that of retroactivity to September 1972 of the wage accretion granted in October of the same year, a benefit which the company financed and the cost of which exceeded \$9,300. The company places the total expenditure of the 1972 union contract at thirty-five cents per hour over the two-year contractual term specified by the contract. Because of these costs stemming from adoption of the contract, the company could ill afford the disbursement of a bonus to bargaining unit employees. The union contends that the cost of the contractual agreement suffered by the company should not have been weighed in the decision to eliminate the Christmas bonus since this extra cost to the company represented a catching-up process in that previous to the union contract, the company had been paying their employees at a rate far inferior to those paid by similar organizations. This contention is irrelevant to the issue at hand since whether or not the company's pre-contractual wage structure was commensurate to

wage structures of like organizations does not mollify the great financial burden placed on the company due to implementation of the 1972 contractual agreement with the union, a burden which prevented the company from administering a bonus to its union personnel. Although non-union employees, including office, executive, and sales personnel received a Christmas bonus in 1972, these employees did not share in the gains made by bargaining unit employees in the same year following adoption of the contractual agreement with the union. There was no thought of impairing the union position by seeking to undermine the union gains negotiated in the contract. The company merely faced a different picture than it had ever faced before.

Also favoring the company position is the fact that there was no Christmas bonus provision in the union contract and no contractual commitment to maintain any benefits, such as the Christmas bonus, which had been in effect prior to unionization, though the union had initially demanded such a commitment when it proposed that Paragraph 80 be included in the contract. Indeed, Paragraph 80, which explicitly called for continuation of pre-unionization benefits, was demanded at the outset of lengthy negotiations, repeatedly objected to by the company, and finally subducted by the union after it had gained other substantial benefits such as improved health, death, and injury benefits, as well as a large wage increase. This collective bargaining history cannot be questioned. The union argues as if Paragraph 80 was operative under the final conditions of the contract but such is not the case. There is no valid rejoinder to the company argument that, by withdrawing Paragraph 80, a clear demand by the union for a continuation of benefits such as the Christmas bonus had been waived during contract negotiations. Thus there was no obligation on the part of the company to provide a Christmas stipend to their union personnel.

In summary, then, my analysis of the case leads me to favor the company position. I recommend that the union's grievance be denied and that bargaining unit employees should not be remunerated for all earning lost when the Christmas bonus was withheld because: (1) the stipend represents a gratuity subject to managerial perogatives rather than a permanent feature of the wage structure, (2) dischargement of the bonus to union personnel was rendered infeasible in light of the financial burden which accrued to the company following implementation of the contractual agreement, and (3) discontinuation of the premium was completely justified since, during negotiations, the union had willingly consented to the deletion of Paragraph 80 from the contract.

Appendix III
 Dependent Measures

Opinion Scale

Initials _____

THE VICTORIA COMPANY CASE

INSTRUCTIONS: Read the following statement carefully and then indicate your verdict by circling the appropriate number on the scale.

"The Victoria company should be required to pay compensation to their union employees for the lost Christmas bonus."

1 : 2 : 3	4 : 5 : 6	7 : 8 : 9	10 : 11 : 12	13 : 14 : 15
Definitely Agree	Probably Agree	Uncertain	Probably Disagree	Definitely Disagree

Other Measures

THE VICTORIA COMPANY CASE: EVALUATION QUESTIONNAIRE

Initials: _____

Age: _____

Sex: _____ Male

_____ Female

Class: _____ Freshman

_____ Sophomore

_____ Junior

_____ Senior

_____ Other (specify)

STOP! DO NOT GO ON TO NEXT PAGE UNTIL TOLD TO DO SO.

INSTRUCTIONS: List below your thoughts and ideas about the possible effects of supporting the company position and thereby denying the union's grievance in the Victoria company case. State your thoughts and ideas as concisely as possible--a phrase is sufficient. You will have THREE MINUTES to write down your ideas. Please stop writing immediately and go on to the next page when told to do so. Do not go on if you finish early.

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

Idea _____

STOP! DO NOT GO ON TO NEXT PAGE UNTIL TOLD TO DO SO.

INSTRUCTIONS: On each of the following scales, please rate the law student who discussed the Victoria company case. Remember that neither participating law students nor law school officials will see these ratings. Therefore, try to be as objective as possible. Please use all of the scales.

1. Competent vs. Incompetent

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Competent	Probably Competent	Uncertain	Probably Incompetent	Definitely Incompetent

2. Warm vs. Cold

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Warm	Probably Warm	Uncertain	Probably Cold	Definitely Cold

3. Intelligent vs. Unintelligent

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Intelligent	Probably Intelligent	Uncertain	Probably Unintelli- gent	Definitely Unintelli- gent

4. Approachable vs. Unapproachable

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Approach- able	Probably Approach- able	Uncertain	Probably Unapproach- able	Definitely Unapproach- able

5. Confident vs. Not confident

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Confident	Probably Confident	Uncertain	Probably Not confi- dent	Definitely Not confi- dent

6. Interesting vs. Dull

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Interesting	Probably Interesting	Uncertain	Probably Dull	Definitely Dull

7. Generous vs. Stingy

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Generous	Probably Generous	Uncertain	Probably Stingy	Definitely Stingy

8. Sincere vs. Insincere

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Sincere	Probably Sincere	Uncertain	Probably Insincere	Definitely Insincere

9. Persuasive vs. Unpersuasive

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Persuasive	Probably Persuasive	Uncertain	Probably Unpersua- sive	Definitely Unpersua- sive

10. Friendly vs. Distant

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Friendly	Probably Friendly	Uncertain	Probably Distant	Definitely Distant

11. Unbiased vs. Biased

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Unbiased	Probably Unbiased	Uncertain	Probably Biased	Definitely Biased

12. Modest vs. Arrogant

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Modest	Probably Modest	Uncertain	Probably Arrogant	Definitely Arrogant

13. Well read vs. Poorly read

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Well read	Probably Well read	Uncertain	Probably Poorly read	Definitely Poorly read

14. Good sense of humor vs. Poor sense of humor

<u>1 : 2 : 3</u>	<u>4 : 5 : 6</u>	<u>7 : 8 : 9</u>	<u>10 : 11 : 12</u>	<u>13 : 14 : 15</u>
Definitely Good sense of humor	Probably Good sense of humor	Uncertain	Probably Poor sense of humor	Definitely Poor sense of humor

INSTRUCTIONS: Answer each of the following items by circling the appropriate number on the scale which appears below the item.

1. How difficult was it to understand the discussion of the case?

1 : 2 : 3	4 : 5 : 6	7 : 8 : 9	10 : 11 : 12	13 : 14 : 15
Extremely Difficult	Somewhat Difficult	Neutral	Slightly Difficult	Not at all Difficult

2. How distracted did you feel from the content of what the law student said?

1 : 2 : 3	4 : 5 : 6	7 : 8 : 9	10 : 11 : 12	13 : 14 : 15
Extremely Distracted	Somewhat Distracted	Neutral	Slightly Distracted	Not at all Distracted

3. How much effort did you put into reading (or "listening to", or "viewing") the discussion of the case?

1 : 2 : 3	4 : 5 : 6	7 : 8 : 9	10 : 11 : 12	13 : 14 : 15
A great deal of effort	Some effort	Neutral	Slight effort	No effort

4. How pleasant was the experience of reading (or "listening to", or "viewing") the discussion of the case?

1 : 2 : 3	4 : 5 : 6	7 : 8 : 9	10 : 11 : 12	13 : 14 : 15
Extremely Pleasant	Somewhat Pleasant	Neutral	Somewhat Unpleasant	Extremely Unpleasant

I. Write down as exactly as you can the position taken by the law student on the Victoria company case:

II. Write down a brief summary of each of the arguments which you can recall that the law student used to support his position.

1.

2.

3.

INSTRUCTIONS: For each of the following multiple choice items select the ONE answer which you feel to be best.

1. Previous to the 1972 union contract, Victoria company employees received yearly wage increases which averaged approximately:
 (a) \$.13 per hour
 (b) \$.16 per hour
 (c) \$.06 per hour
 (d) \$.03 per hour
 (e) \$.19 per hour
2. The wage increase agreed to in the union contract was made retroactive to:
 (a) September, 1971
 (b) February, 1972
 (c) October, 1971
 (d) September, 1972
 (e) October, 1972
3. The cost of making the wage increase retroactive was:
 (a) \$8,300
 (b) \$9,800
 (c) \$3,900
 (d) \$9,300
 (e) \$9,600
4. Which of the following groups did receive a Christmas bonus?
 (a) sales workers
 (b) production workers
 (c) office workers
 (d) a and b
 (e) a and c
5. The company estimates that the two-year period covered by the union contract will cost them:
 (a) \$.19 per hour
 (b) \$.35 per hour
 (c) \$.325 per hour
 (d) \$.135 per hour
 (e) \$.355 per hour

INSTRUCTIONS: Answer each of the following questions as briefly and concisely as possible.

1. Briefly describe how the Victoria company makes decisions about distributing a Christmas bonus:

2. Briefly describe the significance of Paragraph 80 as it bears on the Christmas bonus issue.

3. Why did the union drop Paragraph 80 from the contract before it was signed?

4. Briefly describe how the company justified giving a Christmas bonus to its non-union employees but not to its union employees:

5. Why is it important to the company's case that the Christmas bonus be considered as an "extra benefit" rather than as a permanent feature of the wage structure?

6. Previous to the union contract, how did the wage structure of the company compare to wage structures of similar companies? And, what significance, if any, does such a comparison have for the Christmas bonus issue?

1. To what extent do you think that the language used by the law student who presented arguments on the Victoria company case is appropriate for the role of a lawyer who works in community legal clinics.

1 : 2 : 3	4 : 5 : 6	7 : 8 : 9	10 : 11 : 12	13 : 14 : 15
Definitely Appropriate	Probably Appropriate	Uncertain	Probably Inappro- priate	Definitely Inappro- priate

2. To what extent do you think that the law student who presented arguments on the Victoria company case is the kind of person who should work in a community legal clinic?

1 : 2 : 3	4 : 5 : 6	7 : 8 : 9	10 : 11 : 12	13 : 14 : 15
Definitely the right kind of person	Probably the right kind of person	Uncertain	Probably the wrong kind of person	Definitely the wrong kind of person

3. Please give your interpretation of the study which you have just completed. Finding out what the subjects think is a standard procedure in most psychological experiments. We do this because what subjects think about an experiment may affect how they react. So, write down your interpretation of the study just as you might explain it to a friend who walked up to you right now and asked you what this study is all about.

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Footnotes

1. That the proposed media differences in critical abilities are stable across situations involves the assumption that other situational factors (e.g., source of the message) do not function to affect a receiver's critical abilities. This assumption may prove to be inadequate since it seems reasonable, for example, that certain communicators may emit non-verbal behaviors (e.g., vocal characteristics, mannerisms) that are relatively more distracting for receivers than the non-verbal behaviors emitted by other communicators.

2. An unequal-n analysis of variance which included all 274 subjects (suspicious or otherwise) yielded results virtually identical to those which are reported for the reduced sample size.

3. The author would like to thank Burt Franzman for serving as the confident and non-confident communicator in oral and video-taped conditions.

4. The idea for this manipulation of confidence derives from a study reported by London (1973) in which kinesically expressed confidence was successfully manipulated. The present manipulation extends this idea in its attempt to also manipulate paralinguistically expressed confidence.

5. Since the retention index and the pleasantness ratings were, themselves, systematically affected by the experimental treatments, their use as covariates, strictly speaking, violates an assumption underlying the standard use

of analysis of covariance. Where the treatments do affect the covariate, however, analysis of covariance may still be used to provide information about the way in which the treatments produced their effects. Specific precedent for the use of covariance to test causal models can be found in Cochran and Cox (1957, p. 90).

6. Because factor scores were desired, input to this analysis was in the form of subjects' scores on each of the 14 source ratings. Thus, the factors which were derived from the factor analysis were based on total rather than average within cell correlations. It might, therefore, be argued that the variables loading on each of the 2 rotated factors cohered, not because they shared a common underlying structure, but because they were similarly affected by the experimental manipulations. This does not seem to be a viable explanation, however, since an analysis using as input the average within cell correlation matrix, yielded factors and loadings which were essentially identical to those which are reported and based on the total correlation matrix.

7. Although the message difficulty manipulation was designed to create two messages which differed solely in terms of ease of comprehension, a comparison of the written/easy and written/difficult cells indicates that the two messages must have differed in other respects as well. Though the differences between the two means was not significant, the fact that relatively more opinion change occurred when

subjects received difficult rather than easy written messages suggests that the difficult written message may have been inherently more persuasive than its easy counterpart. Because of the nature of the experimental hypotheses and the fact that the messages, though parallel in most respects, obviously represented two unique communications, the significant Media X Message Difficulty interaction on opinion change was explored by examining differences among media conditions within levels of message difficulty rather than looking for differences between difficulty conditions within media levels.

