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Attitude Change as a Function of Varying Media Presentation

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ATTITUDE CHANGE AS A FUNCTION
OF VARYING MEDIA PRESENTATIONS

by

Thomas A. Watkins

A Dissertation Submitted to the Faculty
of the Graduate School of Loyola University of Chicago
in Partial Fulfillment of the Requirements for the
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VITA

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CHAPTER I

INTRODUCTION

Why individuals change their attitudes and opinions has always been a central concern for various segments of society. The politician is interested in winning votes, the minister in convincing people to lead moral lives, the advertiser in persuading the populace to buy his product. This concern with the ability to persuade others has intensified with the introduction of mass media such as radio, television and newspapers. This is especially evident in "third world" emerging countries where control of the media is equated with political control (Schramm, 1960).

Since the 1940's social scientists have reflected this general interest in communication and persuasion and have conducted innumerable studies with the aim of elucidating the processes which underlie the phenomenon of attitude change. What began as vigorous empirical investigation (Hovland, Janis & Kelley, 1953) has slowly evolved into a complex admixture of theoretical writing and sustained programs designed to test these theories. It would perhaps be instructive to examine the underlying model which serves as the substratum for most studies of attitude change.

Inspection of many studies concerning the persuasion process suggests that experiments on attitude change have

traditionally focused upon three crucial components of the communication chain: the source of the message, the message itself, and finally, the recipient of the message. This implicit scheme of analysis was adopted by Hovland, Janis and Kelley (1953) and is frequently paraphrased as "Who says what to whom with what effect."

The adoption of this model has doubtless been beneficial in that it has served the important function of organizing research efforts and enabling the interested scientist to limit his concern to a particular variable. Hence one could study the effects of source credibility while maintaining a constant message and audience but at a later time vary audience characteristics while holding constant the factor related to message content and source dimensions. Indeed, a great deal of what we now know concerning the effects of source credibility and order of arguments is largely attributable to the adoption of the "Who says what to whom" model.

It is interesting to note, however, that the tripartite model which we are discussing was at some time truncated into the usual combination of source, message and audience factors. Although Hovland et al. chose this form in 1953, the original model was proposed by Lasswell in 1948 and read as follows: "Who says what through what channels with what effect." (Emphasis added.) The original model, then, expressed a concern for the particular channel (i.e., the situation or medium through which the communication is

presented) which conveyed the persuasive message. Guided by the truncated paradigm presented by Hovland et al. (1953), researchers have until very recently not investigated the particular effects which are associated with the medium of the communication.

The state of affairs described above seems particularly unfortunate when one considers the veritable explosion of communication media which has characterized our world during the last two or three decades. Seemingly no sector of contemporary society has been left uninfluenced by innovations such as television, videotape, movie cameras, and most recently "Picturephones." Our day-to-day interactions with other people are becoming increasingly more dependent on these electronic channels of communications rather than the more traditional face-to-face encounter. Pitchmen no longer deliver impassioned speeches to enraptured townfolk audiences extolling the virtues of Natural Elixir. Natural Elixir is rather projected in planned advertising campaigns which heavily utilize television commercials, local multimedia displays, and billboard spreads. In a similar fashion, political candidates decreasingly "take to the stump" to reach potential supporters but instead rely heavily on television as their medium of choice. The time is soon coming when people need only watch goods on a display monitor in their homes and press appropriate buttons in order to do their shopping. Pilot programs are currently in progress to test diagnosis of disease by television. Patients need only

stop at a specified TV clinic where an interview is conducted by a doctor who is miles away. Numerous other examples could be generated from any field of human endeavor--education, business, medicine, advertising, even psychotherapy. The main point of this discussion is simply that there has been a drastic increase in reliance on electronic means of communication for instruction, persuasion and information diffusion.

The changes discussed above have stimulated a surprisingly small amount of basic laboratory research related to media differences and effectiveness. This observation receives substantial support from McGuire (1969), who has stated: "Social psychologists have conducted little basic research on these variables (media factors) presumably because our basic theories have not developed in ways that make channel factors interesting." He continues, however, and suggests that two approaches to studying channel factors may prove fruitful. The first would focus on determining what proportion of the variance the manner of presentation contributes to differential communication effects. The second approach would be to test some of the many available theoretical propositions about media present in the writings of McLuhan (1964, 1967). More specifically, McGuire mentions factors such as linearity and hotness-coolness as possible variables to be investigated. His expressed pessimism regarding this latter approach is supported by a recent study (Bringman, Balance, & Krichev, 1969) which failed to validate McLuhan's contention that "hot" media are more emotionally

arousing than "cool" media. In general, however, McGuire's writings concerning channel factors strongly suggest that research dealing with these variables is both desirable and necessary for a fuller understanding of the influence process.

McGuire is not alone in pointing out the need for research concerning channel factors. Writers in the field of mass communications such as Schramm (1960) and Weiss (1970) have consistently been emphasizing the need for a greater understanding of cross-media differences as they influence both knowledge acquisition and opinion change. J. D. Halloran (1967), an associate of the Television Research Committee of Great Britain, who has been doing work in the field of television and attitude change, concludes one of his discussions of this area with the following: "We need to know more about the formation, maintenance, and dissolution of communication channels, and we need to study the role of the mass media in this connection" (p. 45).

The concern of social psychologists with the effectiveness of mass media, however, has been limited until quite recently to the applied evaluative research carried out by Hovland, Lumsdaine and Sheffield (1949) on propaganda films during World War II. The research conducted by these investigators did much to clarify the influence of a wide range of variables on the overall impact of differing educational and persuasive vehicles. Their work in the areas of persistence of influence and one-sided versus two-sided arguments provided the impetus for much of the attitude change

work of the 1950's and 1960's.

In addition to social psychologists and communications researchers, a third group of individuals is beginning to ask questions about channel effectiveness. In the main these people are practitioners and largely consist of clinical psychologists, professional trainers, and management executives. All three of these groups have in different degrees become involved with the use of audio and videotape techniques in their day-to-day practices. An outstanding and provocative work representing their orientation is Oswald and Wilson's (1971) A Handbook for the Use of Videorecording in the Professions. In this brief volume, the reader is exposed to theoretical and empirical considerations concerning the effectiveness of videotapes in training social workers. In general, practitioners in the field are ultimately concerned with the peculiarities inherent in various media and how they affect subject variables such as attention, retention, attitude change and motivation.

The question of media effects has also begun to assert itself rather strongly in the more limited and specialized area of psychological laboratory experimentation. An interesting example of this emerging trend is a study performed by Peterson (1971) on interpersonal attraction. In this experiment, subjects were required to indicate their liking for four different personality types which were presented on each of four different communication channels. One channel consisted of a standard videotape with sound of

the target person. A second channel consisted of the video playback with soundtrack deleted. The remaining two channels were audiotape only and finally a written transcript of an interview with the target person. The results of this study indicated that certain groups of raters reacted differently to the same target persons when these targets were presented on the various channels. This was an unexpected finding which underscores the potential importance of channel utilization in studying a given phenomenon such as attraction.

A further example of the role that communication channels have begun to play in laboratory studies is an experiment on impression formation performed by Perry and Boyd (1972). Subjects were required to encode and decode impressions of target persons using for input either an audio channel (tape recording) or a visual channel (written transcript of attributes). Results of the experiment indicated that impressions generated from written information were transmitted more accurately than those based on audio information. As in the previously cited study, a significant effect for type of communication channel was reported. In the discussion section of their article, Perry and Boyd stress the importance of channel factors and caution against comparing studies which have utilized differing modes of presentation.

In summary, the research on attitude change has slowly begun to come to grips with the important question of channel

effectiveness. It would seem that Lasswell's original influence paradigm has once again become salient in the face of rapid communications media development. The following sections will concern specific questions which might aid in explicating the role of the medium in the persuasion process.

Approaches to Studying Media Differences

The researcher interested in the field of media effectiveness is faced with a substantial number of problems and areas from which to choose. Fortunately, these problems seem to comprise a natural gradation ranging from gross differences to more subtle ones. Among the many research strategies that might be pursued, three appear to be potentially most fruitful.

The first and least sophisticated approach consists of comparing various single medium presentations such as aural messages and visual messages. The second approach is more complex and concerns the relative efficacy of single and multi-media presentations. An application of this framework might consist of comparing tape recorded messages with televised messages with sound in order to determine which is more persuasive. A last approach which is decidedly more complex than the previous two consists of developing comparisons among differently constructed mixed media presentations. Adopting this procedure would facilitate determining which particular combinations of visual and auditory stimuli are most effective in inducing attitudinal compliance

to a given persuasive communication. Following are discussions of past research on these three approaches.

Single Medium Comparisons

An early study addressed to the question of relative channel effectiveness was performed by Knower (1936). In his experiment, subjects were presented with persuasive messages which dealt with the issue of prohibition. For half the subjects the communication argued for prohibition, whereas for the other half the direction of the communication was reversed. Of greatest relevance to the present discussion was the channel manipulation which consisted of exposing one group of subjects to an orally delivered message while exposing another group to the same message in printed form. The results of this study suggested that the oral presentation subjects changed their opinions in line with the message more so than did the written presentation subjects. The conclusions reached in this particular study are subject to question, however, since no statistical tests of significance were performed.

A series of studies performed by Cantril and Allport (1935) compared the spoken word with the written word. Results of these studies indicate that aural presentations such as those on the radio are superior to print presentations in both transmitting information and changing opinions.

Additional data on inter-media comparisons were collected by Elliot (1937) who conducted a series of field

studies which varied the channel of message presentation from visual (i.e., print) to aural. On the basis of these studies, the author concluded that "...the ear is superior to the eye in molding opinion" (p. 86). An interesting aspect of this study was the theoretical explanation given for the pattern of observed results. Elliot argued that during the 20's and 30's the American populace was receiving a greater and greater proportion of information from the radio and movies and was, therefore, becoming more attuned to aural input than to the usual visual input of the printed word. This proposed theory of "modality shift" is a remarkable adumbration of McLuhan's recent thesis concerning the "preferred modes of human perception" which posits a shift from reliance on the written word to reliance on electronic sources of information.

The previously cited studies all suggest that aural presentations are more effective persuasive vehicles than are printed presentations. Unfortunately, little theoretical consistency is evident across studies with the result that one is left with varying explanations for the differential effects noted.

More recent experiments have considered inter-media differences from a physiological perspective. Crane, Dicker and Braun (1970) performed a study which measured physiological arousal in response to subjects hearing words read (aural channel) and to subjects reading the words themselves. Results indicated that listening to words read was more

arousing than reading words.

Using a similar orientation, Krugman (1971) wrote a monograph concerning EEG responses to differing media and concluded that responses to print (reading) were more in evidence than responses to either hearing or seeing. As these two studies would seem to indicate, little can be concluded at this time from physiological experimentation regarding the broader area of persuasion and attitude change. They do, however, lend support to the notion that different media activate different responses within the organism.

An applied study which varied media channels was performed by Newmiller (1969) who required subjects to evaluate advertisements which were presented to them in either a magazine format or in a slide projection format. Results of this study indicated that subjects consistently evaluated the advertisements more positively in the slide condition than in the magazine condition. Subject opinion in this situation can therefore be said to vary with mode of stimulus presentation.

✓ Taken as a whole, the research cited on persuasion and single medium presentations seems to suggest only one generalization: aural channels of communication appear to be more effective in inducing attitude change than are visual (i.e., print) channels of communication. Ostensibly, hearing a persuasive argument is more likely to change a person's opinion than reading the same argument. One possible theoretical explanation for this phenomenon consists of Greenwald's

(1968) notion of cognitive responses to a message. In print formats, subjects are able to regulate the speed with which they scan the message and therefore conceivably have more time to counter-argue against the message. With aural formats, however, the time element is reduced which in turn could make "counter-arguing" more difficult.

Single Medium vs. Multi-Media Presentations

An intuitively appealing question regarding media or channel effectiveness has to do with the differential impact associated with single and multi-media communications. Advertisers have always seemed to operate on the assumption that a combination of visual and aural input (e.g., a television commercial) is superior to either of these modes presented singly. An interesting and somewhat humorous example of this belief is available as far back as 1924. In this year, Wingler (1969) reports that Herbert Bayer, a renowned Bauhaus designer constructed a multi-media kiosk for Regina cigarettes which transmitted advertising messages by means of motion pictures, public address systems, luminescent signs, and words formed by smoke emissions! Needless to say there were no advertising researchers about to gauge the effectiveness of this rather ambitious venture. Since then, however, there has been an accumulating body of evidence which supports the proposed superiority of multi-media presentations over single medium presentations.

Comparative studies in the field of learning have dealt with the supposed superiority of bimodal over single

mode presentations. Menne and Menne (1972) conducted an experiment which concerned recall of verses as a function of method of presentation. The results suggested that audio-visual instruction was superior to either audio or visual instruction, thereby bolstering the notion that bimodal presentations are more effective than single mode presentations.

Hartman (1961) reviewed the literature relating to content presentations and concluded that in a majority of learning studies superior recall increments were associated with bimodal rather than single mode presentations. The evidence from the field of learning seems to be consistent in pointing to the superiority of multi-media presentations over single medium presentations. The question of whether these presentations are more persuasive is taken up by the following study.

In 1970, Addis conducted a particularly relevant persuasion study which examined credibility of message content as a function of differing channels of communication. Subjects were given information about idiot savant children who had highly developed mathematical abilities. Depending on the condition, this information was conveyed through the medium of sound-film, audiotape, or the written word. Results of these channel variations can be summarized as follows: (a) sound-film was found to be significantly more credible and had greater impact on other beliefs than either taped or written communications; (b) taped and written communications were received with great suspicion; and (c) film

was rated as being more costly and difficult to prepare relative to the other two media. One way of interpreting this study is to suggest that the multi-media channel of film was more persuasive than either of the single medium channels of audiotape or the written word.

Although it would be inappropriate to formulate a generalization relating to channel combinations and persuasion based on so few studies, it does seem that multi-media presentations are superior in eliciting both recall of message content and believability in the message.

Comparisons Among Multi-Media Presentations

Three persuasion studies are relevant to the question of relative efficacy of mixed media presentations. One such investigation was conducted by Festinger and Maccoby (1964) who were interested in determining the effects of distraction on persuasion. In this study, subjects were presented with messages which argued against the continuation of the fraternity system. In one condition, subjects heard the message delivered by a filmed source. The visual component of the presentation was, therefore, congruent with the audio component. In another condition the visual component consisted of an irrelevant film on painting which was incongruent with the anti-fraternity aural message. Results indicated that subjects in the incongruent condition were more persuaded by the message than were subjects in the congruent condition.

A more recent study which concerned itself with mixed

media effectiveness (Croft, Stimson, Ross, Bray, & Breglio, 1969) varied manner of message presentation from a live to a videotaped communicator. The persuasive message in both cases argued against inter-collegiate athletics and was assumed to be discrepant from the subjects' original attitudinal position. Results of this study suggested that the live communicator was more effective than the videotaped communicator in inducing compliance to the message content. Results were discussed in terms of cue differences between the two presentations and varying levels of source credibility.

The results of this study were not replicated by Watkins (1972) who reported directly opposite effects. The results of his study, which also compared live and videotaped communicators, indicated that the videotaped source was more effective in inducing attitude change than was the same communicator appearing live. A partial explanation of these results considered source evaluations across conditions. Subjects consistently evaluated the videotaped communicator as more intelligent and more expert than the live communicator. In addition, positive correlations were reported between evaluation of the communicator and final attitude change.

To date no other experiments have addressed the problem of relative persuasiveness within the mixed media manner of presentation. What is needed is a theoretical framework which can be applied to the many relevant vari-

ables which might account for differential presentation impact. The following section addresses this topic.

Theoretical Considerations

The study to be conducted as part of this dissertation will concern the relative effectiveness of various single and mixed media message presentations in inducing attitudinal compliance to a given communication. The major focus of concern, as suggested in the previous section, will consist of comparing various combinations of visual and aural input which comprise what have been termed mixed media presentations.

Assuming that the aural component of a bimodal presentation is the more important element of the total message, a number of different relationships or functions may be posited for the visual components. In a very general fashion one might conceptualize the visual part of an audio-visual persuasion attempt as an overlay that can either enhance or inhibit the ultimate effectiveness of the total message. Hence, a visual component which is high in intrusiveness, novelty, and activity may aid the potential impact of a given aural message, whereas one which is deficient on these dimensions may lessen the impact of the same message. In addition, there should be varying degrees of enhancement for visual accompaniments which have differing degrees of these same qualities.

An important question to ask is how the visual component enhances the total message presentation. One way in

which this may be accomplished is to have the visual component simultaneously repeat the aural component as in television commercials where the viewer sees a print reproduction of what is being spoken. In this particular situation redundancy is high and the visual display adds little new information to the total communication.

A second way in which aural information may be enhanced is to make the source of the communication visible to his audience. In this mode of presentation the visual component may be said to add information to the aural message in the form of nonverbal cues, such as gestures, facial expressions, posture, and general appearance. The ability of the audience to see the source of the communication enables them to make judgments and evaluations regarding his credibility, trustworthiness, and likability. Conceivably, this type of mixed media presentation is more comprehensible to an audience given that they have more information upon which to base their judgments. Depending on these source effects, however, the ultimate persuasive effect may be inhibited as well as enhanced. There is nothing inherent in the source's visibility which would guarantee greater compliance to a given persuasive argument. The source's visibility does, however, provide more information to the audience than does a presentation in which the visual channel simply repeats the audio channel.

One of the common uses of the visual component of persuasive presentations is in supplementing, illustrating,

or expanding what the aural component is attempting to convey. In these ways, the visual component contributes new information which is not necessarily contained in the aural message. Examples of this supplementary arrangement are available from numerous television commercials. Thus one hears about the stability of a Mercedes-Benz sedan while viewing the automobile successfully cornering at high speeds. One sees a young couple enjoying Europe while hearing how "Air France makes it easy to get there." Supplem-
tarity, therefore, refers to additional information contributed to the persuasive message by the visual component.

A third relationship between the aural and visual components of a persuasive message can be described as distracting. In such cases, the visual part of the communication can take on varying levels of unrelatedness to the aural part and is assumed to compete with the aural channel for the attention of the message's recipient. This type of visual distraction has been reviewed by Tiedge (1975) and has previously been investigated by the following researchers: Festinger and Maccoby (1964), Rosenblatt (1966), Haaland and Venkatesan (1968), and Shamo and Meador (1969). Taken as a whole, these studies indicate a significant relationship between visual distraction and attitude change. Because of a lack of directionally consistent results, however (i.e., some find that distraction inhibits persuasion, while others report a facilitating effect), the relationship between visual distraction and persuasion requires further investigation.

From the foregoing discussions it is clear that a given aural communication can be variously accompanied by differing visual components of a mixed media presentation. The visual element may be used to repeat the audio element, supplement it, or it may act as a distractor. An interesting and fruitful question concerns the differing levels of attitude change one might predict for the various audio-visual combinations. The following consideration of a proposed communications theory may aid in the formulation of persuasion hypotheses.

Barrow (1960) has presented a communications theory which posits that message effectiveness will be a joint positive function of a given message's potency and comprehensibility. Potency in his theory is defined as the degree to which a message is able to attract the attention of a receiver while comprehensibility is defined as the degree to which a message is understandable. The main postulate of the proposed theory is that all things equal, attitude change to a persuasive message should increase as the factors of potency and comprehensibility are increased.

Barrow's approach is closely paralleled by Hovland, Janis, and Kelley's (1953) attitude change theory which implies that attention and comprehension are prerequisites for yielding to a persuasive message. Although their theory is more specific than Barrow's in that it deals with variables related to the source (e.g., credibility) and recipient (e.g., attribution of manipulative intent), the basic frame-

work which makes attention and comprehension necessary conditions for persuasion is quite similar to Barrow's linking of potency and comprehensibility to this dependent variable.

Hypotheses

Applied to the present discussion, both Barrow's and Hovland's theories make possible the formulation of attitude change hypotheses for the various media presentations treated above. The current study will investigate four different audio-visual combinations while holding the audio component constant across conditions. In addition, it will make salient comparisons between two single medium channels, as well as comparisons between these presentations and the mixed media presentations. The following brief descriptions of the experimental conditions will facilitate the development of hypotheses related to expected attitude change differences. In all cases the persuasive message will argue against the use of chest X-rays for the detection of TB.

Print condition: Subjects view and read a 350-word persuasive message which appears as moving print on a videotape monitor.

Audio condition: Subjects hear the message from an audiotape playback.

Print-Audio condition: A simultaneous presentation of the preceding two conditions.

Source-Audio condition: Subjects hear message while viewing the source of the message on a monitor during his delivery.

Complementary-Audio condition: Subjects hear message while viewing videotape which illustrates and expands arguments.

Distracting-Audio condition: Subjects hear message while viewing videotape of cocktail party.

The application of Barrow's theory to these differing modes of presentation requires a discussion of how these modes differ and how these differences might be expected to influence the predictor variables of attention and comprehension. The assignment of expected values to these dimensions enables the formulation of persuasion hypotheses for the various treatment combinations. The order of topics will be: (a) comparisons between single mode presentations, (b) comparisons between single and multi-mode presentations, and (c) comparisons among differing multi-mode presentations.

As reviewed in the earlier section on single medium comparisons, studies which have investigated the relative persuasiveness of aural and visual presentations (Cantril & Allport, 1935; Elliott, 1937; Knower, 1936) consistently report a superior effect for the aural communications channel. Using Barrow's theory, one should be able to explain these results by considering the degree to which the aural and visual channels differ on the dimensions of potency and comprehensibility.

Turning to the first dimension (i.e., potency), it would appear that there is nothing inherent in either a visual or an aural communications channel which would suggest

its superiority in gaining and maintaining attention. Any assertion to the contrary would be at best speculative since little evidence exists to support the notion that one channel should be more intrusive than the other. For this reason, any prediction regarding the relative effectiveness of the single medium treatments discussed above (i.e., print; audio) has to be made on the basis of assumed comprehensibility differences.

Turning to the issue of relative comprehensibility, it can be argued that audiences who hear a message are, in fact, receiving more information than are audiences who read the same message. The orally transmitted communication enjoys the advantage of the speaker's ability to bolster key points through the pacing of his delivery, variable inflections, and other nuances which are absent in the printed communication. Generally speaking, tone and relative emphasis are more under the influence of a speechmaker than they would be in the case of a writer. In sum, factors such as pacing, inflection, and tone are inherently an important part of aurally delivered messages and as such may be conceptualized as additional information which is less evident in written messages. It follows, therefore, that audiences who hear a given communication are being exposed to more information than are audiences who read the same communication.

Assuming that additional cues such as pacing and emphasis are appropriate to the intent of a particular oral

delivery, it can be argued that such a delivery will be more readily comprehensible than will be its printed counterpart. Relating these assertions to Barrow's theory, it was hypothesized that the Audio treatment will elicit greater attitude change than will the Print treatment (Hypothesis 1).

The second area for comparison of presentation modes concerns the estimated effectiveness of single medium and multi-media channels of communication. Relative to the predictor variable of potency, it can be argued that mixed media presentations are better able to gain and maintain audience attention than are single medium presentations. The composite nature of multi-media vehicles heavily contributes to their assumed superiority to single medium vehicles. Hence, a television commercial is more difficult to ignore than is either a commercial on the radio or an advertisement in a magazine. The capacity of mixed media vehicles to rely on one or the other of two channels to engage attention is by definition not present in single medium vehicles. Thus an audience watching television may be drawn to listening to a commercial because of its visually engaging format. Conversely, they may be drawn to the action of the commercial as a consequence of hearing a familiar lead-in jingle. The potential of mixed channel communications to engage one or the other of two senses or both senses simultaneously is not present in single channel communications. Given this important difference, it is suggested that multi-media presentations should, in general, be more attention-

getting than single mode presentations. It follows, therefore, that double channeled communications should receive a higher value on Barrow's potency dimension.

Turning to the comprehension variable, a similar argument may be advanced for the superiority of dual channel communications. Simply stated, multi-media presentations contain more information than do single medium presentations. Past research (Addis, 1971; Hartmann, 1961; Menne & Menne, 1972) strongly supports the generalization that bimodal presentations are more effective in transmitting information than are single mode presentations. Compound stimuli (such as simultaneous audio-visual displays) activate the use of multiple sense modalities which ostensibly operate in a synergistic and mutually reinforcing fashion. In terms of Barrow's theory, it appears justified to infer that mixed media presentations should receive a higher comprehensibility value than single medium presentations due to the informationally richer nature of compound stimuli.

From the previous discussions, it is suggested that multi-media treatments should be theoretically superior to single medium treatments on both dimensions of potency and comprehensibility. Given that Barrow's theory positively relates performance on these dimensions to overall persuasiveness, it was hypothesized that: The mixed media treatments will elicit greater degrees of attitude change than will the single medium treatments (Hypothesis 2).

The remaining hypotheses treat of expected persua-

sion differences as a function of varying visual accompaniments to a given aural message. Within the design of the current experiment, visual accompaniments have been constructed such that a range of relationships can be posited regarding the intended function of the visual component of the message. Operationally, these visual overlays consist of the following: (a) "rolling" print, (b) on-camera presenter, (c) complementary and expository visual material, and (d) distracting visual material.

As with previous comparisons, theoretical values for attention and comprehension can be estimated for the various visual overlays of the aural message. An exploratory hypothesis regarding the expected effect of the distracting visual component will be treated in a later section.

On judgment, the remaining three visual components can be ranked as follows (most to least effective) on the dimension of potency: (1) Complementary, (2) Source, and (3) Print. The implicit characteristic for this ranking is the degree to which each of the overlays represents a changing and engaging visual field. In this regard, the Complementary component is highest in potency in that the visual presentation consists of quick-cutting scenes which display a variety of activities (e.g., lecturing, diagnosing, operating, consulting) in equally diverse settings (i.e., classrooms, hospital offices, operating rooms).

The condition that is judged to be less attention-

getting than the Complementary-Audio condition but more intrusive than the Print-Audio condition simply consists of a videotaped presenter who delivers his message from a stationary position in a static environment. Using novelty and rate of visual change as a criterion, it can be argued that attention generated by the visual component of the total message should increase as one moves from print to presenter to expository and illustrative visual material. In sum, it is hypothesized that a visible presenter of the message will be more engaging than a print reproduction of the message, while a more varied and changing visual accompaniment (i.e., the Complementary-Audio treatment) should be more engaging than either of the former two components.

A similar argument can be forwarded for the expected comprehensibility of the three mixed media presentations under discussion. The visual accompaniments to the basic aural message (i.e., "rolling" print; presenter; and illustrative material) form a continuum which runs from high redundancy/low additional information in the case of the Print-Audio treatment to low redundancy/high additional information in the case of the Complementary-Audio treatment.

The following hypotheses are derived from the previous discussion which suggests that higher attention and comprehension values be assigned to visual displays which are judged to be more varied and less redundant:

The Source-Audio treatment will elicit greater degrees of attitude change than will the Print-Audio treatment


(Hypothesis 3).

The Complementary-Audio treatment will elicit higher levels of attitude change than either the Source-Audio or Print-Audio treatments (Hypothesis 4).

The foregoing discussions have served to relate the planned stimulus conditions to probable persuasion outcomes based on Barrow's (1960) theory of potency and comprehensibility. The major predictions are based on assumptions and past research regarding the ultimate persuasive effectiveness of the various stimulus conditions. The following represents a summary of expected attitude change results for the hypotheses considered thus far:

Low Persuasion

High Persuasion

Print Audio Print-Audio Source-Audio Complementary-Audio 

The last hypothesis addresses the estimated effectiveness of a mixed media presentation in which the visual component is incongruent or distracting relative to the aural component of the message. The inclusion of a distracting treatment is motivated by both the directional inconsistency (Tiedge, 1975) of past distraction/persuasion research as well as the need to replicate as closely as possible pioneering experiments in this area. Because of the ambiguous properties of incongruent dual channel messages, the current exploratory hypothesis is not justifiably relatable to the potency and comprehension theory of Barrow (1960). Rather, the following hypothesis is based on previously obtained results reported by Festinger and Maccoby (1964) whose method-

ology is closely paralleled by the current experiment's Source-Audio and Distractor-Audio conditions. The concluding hypothesis was: The Distractor-Audio treatment will effect higher levels of attitude change than will the Source-Audio treatment (Hypothesis 5).

CHAPTER II

METHOD

Overview

Subjects were assigned to one of seven treatment groups by a randomized block technique in which conditions were randomly rotated. In two of the experimental conditions, subjects received a single medium presentation of a persuasive message which they either heard from a tape recorder or viewed in moving print on a television screen. The remaining four experimental conditions were comprised of mixed media presentations in which the message was heard from a tape recorder along with simultaneous visual programs which appeared on a television screen. Although the audio portion of the presentation remained constant across these four experimental conditions, the visual component varied in its relation to the aural message. The seventh condition was a control condition in which the subjects received no experimental manipulation but merely filled out an attitude scale regarding chest X-rays.

In each of the experimental conditions, 20 subjects were exposed to a persuasive message which convincingly argued against the use of chest X-rays for the detection of TB. Afterwards they were required to complete a questionnaire which was designed to measure post-treatment attitude,

source and message evaluation, and other factors, such as attention to message and recall of message content.

Subjects

The subjects were 140 introductory psychology students at Loyola University of Chicago who were asked to participate in eight experiments during the course of the semester as a class requirement. A majority of the sample were freshmen between the ages of 17 and 20 who were enrolled in a liberal arts program of the University. Because of the nature of the television presentation, subjects in the experimental conditions were run in groups of three to five. The control condition was run in two groups of approximately 10 subjects each.

Source of Communication

The source of the communication in the experimental conditions was a graduate student who volunteered to act as a confederate in the study. He assumed the role of an "expert in the field of chest X-rays" and was described to the subjects as a third year medical student at the University of Chicago who had been conducting research in the field of radiation exposure.

Persuasive Communication

The persuasive communication began by stating that health authorities have been studying the use of basic tools of health diagnosis and have made recommendations concerning

the use of these tools. It goes on to note that increases have been reported in the incidence of leukemia and sterility and links this increase to radiation exposure. Chest X-rays for the detection of TB are mentioned as one of the contributing agents of radiation. The message then catalogues the possible after-effects of exposure to radiation such as hemophilia and leukemia. This discussion is rather technical and deals with fluctuations in leucocyte count of the blood system.

The next series of arguments suggests that radiation can lead to sterility and gene mutations as well as chromosomal breakdown. Following these arguments mention is made of the "skin test" which can be safely substituted for the dangerous chest X-ray. The concluding arguments are as follows: "...it can be seen that exposure to frequent radiation, including the small amounts of radiation present in the chest X-ray, can be very dangerous to health. It can cause leukemia, sterility or birth defects. Chest X-rays should be taken as infrequently as possible and preferably not at all." The message is reproduced in full in Appendix A.

Apparatus

Prior to the experiment four videotapes were filmed to comprise the visual components of the four mixed media presentations. In all cases, an Audiotronic portable videotape system was used with 1/2 inch Sony videotape. Two of

the mixed media presentations necessitated making videotapes of films projected by a Bell and Howell 16 mm. projector.

In one single medium condition a Wollensak monophonic tape recorder was used along with a Shure microphone to record the source's voice.

Design and Treatments

Manner of presentation was varied across six treatments to comprise a seven-treatment (control included) experimental design. The experimental cells consisted of two single medium treatment groups and four mixed media treatment groups.

In the Audio condition, subjects only heard the persuasive communication by means of an audio playback of a pre-recorded tape.

In the Print condition, subjects saw a printed reproduction of the message which slowly moved down a television screen. The printed message appeared in one inch letters which were pre-recorded on videotape. Paper shades were taped to the television screen exposing a visible strip of only three inches which contained the moving print. This procedure prevented the subjects from returning to earlier parts of the message for rereading.

The first mixed media treatment, designated Print-Audio, was a combination of the single medium conditions and consisted of a simultaneous playback of the spoken message along with the printed message. Thus, subjects heard the

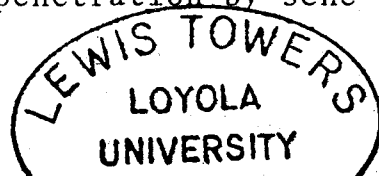
source delivering the message which they were reading on the television screen.

A second mixed media treatment consisted of the subjects viewing the source on a television screen during his delivery of the message. The visual part of this presentation was the source speaking from a seated position before a desk and looked very much like the format used for television news programs. This treatment was designated Source-Audio.

In the Complementary-Audio treatment, subjects heard the message as usual but also simultaneously viewed a pre-edited videotape of a film which was intended to both reinforce and expand the basic aural message. Segments of an introductory film on X-ray technology called "The Light in Shadows" were pre-recorded and timed to coincide with various parts of the anti-X-ray message. The following examples may aid in illustrating the procedure used.

The first sentence the subjects heard of the message stated that: "Health authorities have recently examined some of the tools used in tuberculosis diagnosis and have made recommendations concerning the use of these tools." The visual accompaniment consisted of a doctor in a white lab coat standing before a number of X-ray prints while addressing an audience.

Later on, the source of the communication addressed himself to the dangers of "whole body radiation." While hearing about "whole body radiation," the subjects saw a rendering of the human torso undergoing penetration by sche-



matic X-rays.

Throughout other parts of the anti-X-ray message, subjects viewed people being X-rayed along with a number of sequences of doctors and nurses with rather concentrated and concerned looks on their faces.

At one point while hearing of the dangers of repeated X-ray exposure, subjects saw a variety of ominous looking X-ray machines followed by a full-screen close-up of the radiation warning sign: CAUTION: HIGH RADIATION AREA: KEEP OUT.

While the purpose of the particular treatment was to provide visual information which complemented the aural information, there were brief periods during which what was being viewed was not directly related to what was being heard. In one instance, subjects were hearing about the advantages of the "skin test," a proposed alternative to chest X-rays, while viewing technicians and nurses talking with patients. Generally, however, the visual presentation did correspond to the aural presentation.

The last mixed media treatment, designated Distractor-Audio, consisted of juxtaposing an irrelevant visual presentation over the usual audio presentation. While hearing the anti-X-ray message, the subjects viewed a videotape made from a film which depicted a cocktail party and conversation between David Steinberg and a cognitive psychologist. During the course of the videotape, subjects watched interaction among various people at the party and a rather arous-

ing segment in which an attractive blonde disrobes before an obviously interested audience. The last segment of the videotape consisted of a scene in which a "magician" entertained the party-goers with "slight of hand" tricks. In this treatment condition there was absolutely no correspondence between the aural and visual components of the presentation. The procedure used here was similar to that utilized by Festinger and Maccoby (1964) in their study of distraction and persuasion.

Summarizing, the seven experimental conditions were:

1. Audio - subjects heard the persuasive message via audiotape playback.
2. Print - subjects read a moving printed reproduction of the message on a television screen.
3. Print-Audio - subjects read a reproduction of the message on a television screen while simultaneously hearing an audiotape of the same message.
4. Source-Audio - subjects viewed the source of the message on a television screen during his delivery while hearing his delivery.
5. Complementary-Audio - subjects viewed a videotape which reinforces and illustrates what they were hearing on the audiotape.
6. Distractor-Audio - subjects viewed a videotape which was entirely irrelevant to what they heard on the audiotape.
7. Control - subjects were not exposed to any

stimuli.

Experimental Booklet

Each subject received a booklet containing the following scales and checklists: (a) a 7-point scale intended to measure degree of comfort or discomfort experienced during the message presentation; (b) a checklist running from 30 seconds to 9.5 minutes designed to measure the subjects' estimation of message length; (c) an attitude scale consisting of four 15-point bipolar scales pertaining to the message content (e.g., "Chest X-rays should be taken regularly and often."); (d) a "fill in the blanks" test which measured recall of the message content (e.g., "A safer alternative to the chest X-ray is the _____."); (e) a 3-statement checklist which concerned direction of attention relative to the visual and aural components of the presentation (mixed media presentations only); (f) a fill in the blanks page concerned with percentage of time spent in attending to the message itself; (g) a 16-item semantic differential for evaluating the total message (e.g., good-bad; fast-slow; interesting-boring); (h) another semantic differential identical to that described in (g) to be answered only about the visual part of the presentation (mixed media only); (i) another message evaluation differential to be answered only about the aural part of the presentation; (j) an attitude scale identical to that described in (c) which was to be answered from the source's point of view; and (k) a 9-point evaluation of the source of

the message running from "I would consider him completely incompetent to render an opinion on this matter" to "I would accept his judgment on this matter without question." This last page of the booklet also contained 6 semantic differential items which measured the subjects' evaluation of the source on the dimensions of activity, trustworthiness and intelligence.

Subjects who served in the Control condition were given a one-page booklet which contained an attitude scale which measured attitudes toward chest X-rays.

A complete set of the experimental questionnaires may be found in Appendix B.

Procedure

When the subjects reported to the laboratory, they were first given credit for participation in the experiment. The experimenter was required to sign a credit sheet indicating that one point be added to the record of the subject in question.

Afterwards, experimental booklets were distributed and the subjects were asked to complete information on the first page regarding name, sex, age, and year in college. At this point, the experimenter indicated that the booklets should remain closed during the experiment, until further instructions were given.

For the four mixed media conditions the following introductory comments were given:

During the first part of the experiment you will be watching and hearing a communication concerned with the effects of radiation exposure. The person who will be delivering the communication is a third year medical student at the University of Chicago and, although he is fairly young, he is considered by many to be an expert in the field of radiation exposure. In addition, he has been directly involved in research in this area for the past three years.

After you've heard the communication, you'll be asked to complete a few scales and checklists regarding what he has had to say and how you felt about it. ... Are there any questions?

If there were no questions, the experimenter then turned on the equipment which played back the various audio-visual presentations described in a previous section.

After the presentation, the experimenter asked the subjects to complete the various scales and checklists contained in the experimental booklets. The subjects were asked to answer all the questions and were told to guess on some if they had to.

Upon completion of the questionnaire, subjects were thanked for their participation in the experiment and were debriefed regarding the fictitious nature of the persuasive message. They were additionally instructed to refrain from discussing their participation in the experiment with classmates.

Three to four subjects per session were randomly selected for a brief interview which probed possible attributions as to the purpose of the experiment. The reason for these interviews was to obtain a qualitative reading regarding the existence of perceived manipulative intent and possible demand characteristics. These interviews are discus-

sed in the chapter on results.

The procedure was the same for the single medium conditions with the exception of slight variations of wording concerning the presentation. In all conditions, the description of the source remained constant.

CHAPTER III

RESULTS

Attitude Change

The hypotheses concerning attitude change were as follows: (a) The Audio condition will elicit greater attitude change than will the Print condition. (b) The mixed media conditions will elicit greater degrees of attitude change than will the single medium conditions. (c) The Source-Audio condition will elicit greater degrees of attitude change than will the Print-Audio condition. (d) The Complementary-Audio condition will elicit higher levels of attitude change than either the Print-Audio or Source-Audio conditions. (e) The Distractor-Audio condition will effect higher levels of attitude change than will the Source-Audio condition.

The major dependent variable of concern was the subjects' post-treatment attitude concerning the target issue of chest X-rays. Post-treatment attitude was measured on four 15-point bipolar scales in the experimental booklet. Since past research (Johnson & Watkins, 1971) has indicated that these four scales are highly correlated, each subject's score was computed as a sum of his ratings across all the scales. Using this procedure, the range of possible scores

was from 4 to 60, with a lower score representing more attitude change. A lower score would reflect an anti-X-ray attitude like that advocated by the communication, whereas a higher score would reflect a pro-X-ray attitude. It was, of course, assumed that prior to the study subjects held a favorable attitude toward chest X-rays. The post-treatment means for the various conditions are reported in Table 1.

TABLE 1

Mean Post-Treatment Attitude Scores
as a Function of Media Presentation

Treatment						
C	P	A	P-A	S-A	C-A	D-A
44.6	25.0	20.3	18.4	19.6	23.9	16.8

NOTE. C=control; P=print; A=audio; P-A=print-audio; S-A=source-audio; C-A=complementary-audio; D-A=distractor-audio.

A one-way analysis of variance was performed on the means for the six treatment groups and one control group yielding a significant $F(6, 133) = 13.8$, $p < .05$. (See Appendix C for ANOVA summary tables.) A Duncan's Multiple Range Test was performed on the ordered mean differences which indicated that all the experimental means were significantly different (i.e., more anti) than the control mean ($p < .05$). An examination of the experimental means also indicates that they are all on the anti side of neutrality (32.0) on the attitude scales.

In addition to the expected difference between Control and Treatment means, the following comparisons were found to be significantly different at the .05 level: (a) The Distractor-Audio condition elicited significantly more attitude change than did the Print condition. (b) The Distractor-Audio condition also led to more change than did the Complementary-Audio condition.

These results for the dependent measure of attitude change failed to support Hypotheses 3 and 4 which respectively predicted a greater effect for the Source-Audio treatment relative to the Print-Audio treatment and a similar superiority for the Complementary-Audio treatment relative to the Print-Audio and Source-Audio conditions.

Hypothesis 5, which predicted greater compliance to the message in the Distractor-Audio condition relative to the Source-Audio condition, was not confirmed although the direction of difference conformed to predicted results.

Hypothesis 2, which predicted greater attitude change for the mixed media treatments relative to the single medium treatments, was supported by two findings. As mentioned previously, the Distractor-Audio condition elicited more attitude change than did the Print condition. In addition, the Print-Audio condition was superior to the Audio condition at the .10 level. Other evidence which tends to support Hypothesis 2 consists of the fact that grand means computed for the four mixed media conditions and the two single medium conditions were in the predicted direction. The grand mean

for the two single medium conditions was 22.6, while the grand mean for the mixed media conditions was 19.7, indicating a trend for more compliance and attitude change for the latter treatments.

Table 2 summarizes the results in terms of predicted direction of difference for the attitude means. The entry "ED" for a particular two-treatment comparison indicates that the post-treatment mean difference is in the expected direction relative to the appropriate hypothesis. An "R" indicates a reversal in direction of predicted difference, while "NP" refers to a comparison for which no predictions were made.

TABLE 2

Summary of Predicted Directions of
Post-Treatment Attitude Score Differences

	Treatment					
	P	A	P-A	S-A	C-A	D-A
<u>Treatment</u>						
P	-					
A	ED	-				
P-A	ED	ED	-			
S-A	ED	ED	R	-		
C-A	ED	R	R	R	-	
D-A	ED	ED	NP	ED	NP	-

Although not statistically different, the following post-treatment mean differences were in the predicted direc-

tion and, therefore, congruent with the hypotheses:

- (1) Audio > Print (Hypothesis 1)
- (2) Print-Audio > Print (Hypothesis 2)
- (3) Source-Audio > Print (Hypothesis 2)
- (4) Complementary-Audio > Print (Hypothesis 2)
- (5) Source-Audio > Audio (Hypothesis 2)
- (6) Distractor-Audio > Audio (Hypothesis 2)
- (7) Distractor-Audio > Source-Audio (Hypothesis 5)

The following post-treatment attitude differences were not in the predicted direction and, therefore, contradict the hypotheses:

- (1) Complementary-Audio < Audio (Hypothesis 2)
- (2) Source-Audio < Print-Audio (Hypothesis 3)
- (3) Complementary-Audio < Print-Audio (Hypothesis 4)
- (4) Complementary-Audio < Source-Audio (Hypothesis 4)

The total directional pattern (including significant differences) indicates nine mean differences in the predicted direction against four reversals.

In summary, the Distractor-Audio condition was found to be more effective in inducing compliance to the message, whereas the Print condition was found to be least effective. The means for attitude change can be ordered as follows, ranked from most persuasive to least persuasive: (1) Distractor-Audio, (2) Print-Audio, (3) Source-Audio, (4) Audio,

(5) Complementary-Audio, and (6) Print. A surprising finding was that the Complementary-Audio condition was rather weak relative to the other treatments.

Recall of Message Content

Subjects were required to fill in the blanks of a 30-item recall measure which consisted of incomplete sentences taken directly from the message. A "soft" scoring technique was used in which approximate answers were scored as correct even though they did not exactly reproduce the words used in the original communication. For example, in one question the correct response was blood system. Subjects who substituted circulatory system for blood system were given credit for a correct response. Scores for each subject were recorded in percents, with higher percentages reflecting greater recall of the communication. Table 3 contains the means for this variable for the six treatment groups. An overall one-way analysis of variance performed on these values yielded a significant $F(5, 114) = 3.1, p < .025$.

TABLE 3

Recall of Message Content
as a Function of Media Presentation

Treatment					
P	A	P-A	S-A	C-A	D-A
55.5	58.1	71.8	73.1	66.0	62.8

A Duncan's Multiple Range Test indicated that there

were significant differences at the .05 level for four of the possible 15 mean comparisons. Subjects in the Print-Audio condition remembered significantly more of the message content than did subjects in either the Print or Audio conditions. The same pattern emerged for the Source-Audio condition in that subjects in this treatment were able to recall significantly more than could the subjects in either the Print or Audio conditions. The Print-Audio and Source-Audio means for recall did not differ between themselves nor did they differ from the remaining mixed media treatments of Complementary-Audio and Distractor-Audio. Grand means were computed for the two single medium conditions and the four mixed media conditions. These pooled measures suggested that subjects in mixed media treatments tended to remember more of the message content than did subjects in single medium treatments (68.4% versus 56.8%).

Ordering the treatment groups from "most recalled" to "least recalled" yielded the following pattern: (1) Source-Audio, (2) Print-Audio, (3) Complementary-Audio, (4) Distractor-Audio, (5) Audio, and (6) Print.

Spearman rank-order correlations were performed between recall of message content and post-treatment attitude in order to determine if any association existed between these two variables. The correlation coefficients are reported in Table 4 for the six treatment groups.

Five of the six computed coefficients were low and positive, but none of these reached the criterion of statis-

tical significance. An exception to this trend occurred in the Print-Audio condition in which a significant negative correlation was reported. Taken together, these results suggest that recall of message content is not related significantly to post-treatment attitude.

TABLE 4
Correlations Between Recall of
Message Content and
Attitude Change Scores

Treatment					
P	A	P-A	S-A	C-A	D-A
.26	.14	-.55*	.37	.26	.25

* $p < .05$.

Perception of Source Position

Subjects were instructed to complete an attitude scale concerning chest X-rays while assuming the perspective of the source of the communication. This measurement was included in order to determine the extent to which the subjects understood the advocated anti-X-ray position. The range of possible scores was from 4 to 60, with the lower number indicating the actual position advocated by the source of the message. Means for this measure are reported in Table 5.

A one-way analysis of variance performed on these means yielded a non-significant $F(5, 114) = .38, p > .10$.

This result appears to indicate an equivalency of accurate perception of the source's position for all treatment groups.

TABLE 5

Means for Perceived Source Position

Treatment					
P	A	P-A	S-A	C-A	D-A
9.4	11.5	8.8	8.4	8.3	8.4

Spearman within-cell correlations were computed between the measures of perception of source's position and post-treatment attitude. The results are reported in Table 6.

TABLE 6

Correlations Between Perception of Source Position and Post-Treatment Attitude

Treatment					
P	A	P-A	S-A	C-A	D-A
.48	.25	.43	.33	.20	.74*

* $p < .05$.

Five of the six correlations were low and positive but non-significant. The only significant association between perception of source's position and final attitude occurred in the Distractor-Audio condition.

Length of Message Estimation and Subjective Comfort

One of the checklists completed by the subjects required that they estimate the length of the presentation on a scale incremented in half minutes running from 30 seconds to 9.5 minutes. The actual length of all the presentations was 5 minutes and 30 seconds. Table 7 reports the time estimations for each treatment group in minutes. A one-way analysis of variance on these mean estimates yielded a non-significant $F(5, 114) = 1.7, p > .10$.

TABLE 7

Estimated Length of Message as a
Function of Media Presentation*

Treatment					
P	A	P-A	S-A	C-A	D-A
3.9	4.9	4.7	4.4	5.0	5.2

* Actual length of message was
5 1/2 minutes.

Subjects were also asked to indicate their general feeling of comfort or discomfort during the message presentation by checking one of six points on a scale running from "very restless" to "very comfortable." A score of 1 would reflect extreme restlessness whereas a score of 6 would represent extreme comfort. Means for this measure were calculated and appear in Table 8. Although there appears to be a slight tendency for subjects in the Distractor-Audio con-

dition to report being less comfortable, analysis of variance on these means yielded a non-significant $F(5, 114) = .41$, $p > .10$. The Duncan's Range Test also failed to indicate any significant mean differences.

TABLE 8

Subjective Comfort Ratings as a
Function of Media Presentation

Treatment					
P	A	P-A	S-A	C-A	D-A
4.1	3.9	4.0	4.2	4.2	3.6

Selective Attention to Message

Subjects in the four mixed media conditions were required to fill out two pages of the experimental booklet which related to attention factors.

The first measure was conceptualized as a gross qualitative indicator of direction of attention and consisted of the following three statements of which the subjects were required to check one: "I paid equal attention to what I saw and to what I heard during the presentation"; "I paid more attention to what I saw than to what I heard"; and "I paid more attention to what I heard than to what I saw." Table 9 represents the percentages with which these three statements were endorsed across the four mixed media conditions.

Collapsing over conditions, it appears that a majority of subjects paid more attention to the aural rather than

the visual component of the presentation. Comparisons within each treatment group indicated a consistent pattern of subjects reporting more attention to what they heard than to what they saw. This trend is particularly evident and most pronounced in the Complementary-Audio condition where 75% of the respondents indicated more attention to aural input as opposed to the remaining 25% who reported more attention to visual input.

TABLE 9

Subject Reports of Direction of Attention
During Mixed Media Message Presentations

<u>Treatment</u>	<u>Relative Attention</u>		
	Equal	More To Heard	More To Saw
P-A	.25	.45	.30
S-A	.30	.55	.15
C-A	.00	.75	.25
D-A	.10	.55	.35
Means	.16	.57	.26

A second measure of attention consisted of requiring the subjects to estimate percentages of time spent in thinking about various factors during the message penetration. For the four mixed media conditions, subjects had to supply percentage estimates for the following four items with clear instructions that the percentages must total 100%: (1) Per-

centage of time spent thinking about things related to what the speaker was saying. (2) Percentage of time spent thinking about the speaker's manner of presentation. (3) Percentage of time spent thinking about other objects in the room. (4) Percentage of time spent thinking about things outside the experiment. These four factors were conceptualized as representing progressively remote focuses of attention relative to the actual message.

Items (1) and (2) were modified for the Print condition to read: (1) Percentage of time spent thinking about things related to what the communication was saying; and (2) Percentage of time spent thinking about the way the communication was worded.

Mean percentage estimates were computed for the first item which represented the highest level of attention to the actual message content. These means are reported in Table 10. An overall one-way analysis of variance was performed on these means yielding a non-significant $F(5, 114) = 1.25$, $p > .10$.

TABLE 10

Percentage of Time Spent Tending
Directly To Message Content as a
Function of Media Presentation

Treatment					
P	A	P-A	S-A	C-A	D-A
66	64	66	62	71	78

The Duncan's Multiple Range Test, however, indicated the following differences. Subjects in the Distractor-Audio condition reported paying significantly more attention to the message content than did subjects in the Source-Audio condition. This difference was significant at the .05 level.

Source Evaluation

In order to obtain information concerning source credibility, subjects were asked to evaluate the source by completing a 9-point checklist which ranged from (1) "I would consider him completely incompetent to render an opinion on this matter" to (9) "I would accept the source's judgment on this matter without question." A higher number would, therefore, reflect a more positive evaluation of the source's credibility.

Mean credibility ratings were computed for each treatment group and are reported in Table 11. A one-way analysis of variance performed on these means indicated an absence of overall differences across treatment groups $F(5, 114) = 1, p > .10$. The Duncan's Multiple Range Test, however, confirmed a difference in credibility rating between the Distractor-Audio and Source-Audio conditions at the .10 level. Accepting this level as the criterion, subjects in the Distractor-Audio condition rated the source as more credible than did subjects in the Source-Audio condition.

TABLE 11

Credibility of Source as a
Function of Media Presentation

Treatment					
P	A	P-A	S-A	C-A	D-A
5.8	6.0	6.5	5.7	6.0	6.6

In addition to credibility ratings, data were collected which reflected subjects' evaluations of the source on dimensions such as trustworthiness, intelligence, expertness, and boldness. More specifically, subjects were required to complete six 6-point semantic differential scales for the following dimensions: (a) trustworthy-untrustworthy; (b) intelligent-unintelligent; (c) ignorant-expert; (d) bold-timid; (e) energetic-tired; and (f) respectful-disrespectful. Responses were assigned values from -3 to +3, with a positive number indicating a more positive evaluation of the source on a particular characteristic. The mean evaluations for the six treatment groups are reported in Table 12. All values in this table are positive.

One-way analyses of variance were performed on the means for the various source characteristics to determine if there were any differences across treatment groups. All computed F ratios were non-significant with 5 and 114 degrees of freedom. (Trustworthiness: $F = .80$; Intelligence: $F = 1.67$; Expertness: $F = 2.11$; Boldness: $F = 1.06$; Energetic:

$\underline{F} = .61$).

TABLE 12

Source Characteristic Evaluations as a
Function of Media Presentation

	Treatment					
	P	A	P-A	S-A	C-A	D-A
<u>Dimensions</u>						
Trustworthy	1.4	1.9	1.6	1.1	1.3	1.8
Intelligent	1.8	2.0	2.5	2.0	1.3	1.8
Expert	1.4	1.6	1.8	.9	1.3	1.9
Bold	1.0	1.4	1.6	.8	1.4	1.2
Energetic	1.4	1.1	1.4	.7	1.2	1.4
Respectful	1.6	1.9	1.9	1.4	1.3	1.8

Evaluation of Presentation

Subjects were required to complete a 16-item semantic differential which measured their evaluation of the presentation as a whole. The 7-point scales were scored from -3 to +3 with a 0 value recorded for neutral or undecided responses. A higher positive number reflects a more positive evaluation, whereas a higher negative number reflects a more negative evaluation. Means by treatment for the 16 items are reported in Table 13.

TABLE 13
Evaluation of Total Message as a
Function of Media Presentation

	Treatment					
	P	A	P-A	S-A	C-A	D-A
<u>Dimensions</u>						
Clear	1.5	.9	2.0	1.8	1.0	.4
Conclusive	.8	1.3	1.2	1.1	1.3	.9
Plausible	1.0	1.1	1.0	.8	1.1	1.0
Authentic	.9	.8	1.4	.4	1.4	.6
Fast	.5	.4	.4	.8	.7	.3
Good	.6	.8	1.4	.9	.8	.9
Informative	2.0	1.7	2.1	1.5	1.4	1.5
Complex	- .2	.2	0	- .2	- .1	.2
Interesting	1.6	.5	1.0	0	1.1	1.3
Knowledgeable	1.6	1.6	1.8	1.4	1.4	1.5
Persuasive	.6	1.4	1.4	.8	.6	.8
Relevant	1.2	1.4	2.0	.9	1.0	.6
Hot	.4	- .6	.1	- .4	.1	.2
Involving	.9	.1	1.3	.4	.5	.3
Valid	1.2	1.2	1.9	1.0	1.4	1.0
Expensive	0	.1	.2	- .3	.2	.4

These data indicate a relatively more positive evaluation of the Print-Audio treatment and a tendency toward less positive evaluations for the Distractor-Audio treatment.

Table 14 summarizes the results for the six treatments.

TABLE 14
Summary by Treatment Group

Variable	Treatment					
	P	A	P-A	S-A	C-A	D-A
Post-Treatment Attitude	25 ^a	20	18	20	24	17
Recall	56%	58%	72%	73%	66%	63%
Source Position	10 ^b	12	9	8	8	8
Message Length	3.9	4.9	4.7	4.4	5.0	5.2
Comfort Rating	4.1 ^c	3.9	4.0	4.2	4.2	3.6
% Time Attending To Message	66%	64%	66%	62%	71%	78%
Source Credibility	5.8	6.0	6.5	5.7	6.0	6.6

^aThe lower the number, the greater the attitude change.

^bThe lower the number, the more accurate the perception of position.

^cThe higher the number, the more positive the rating.

The qualitative interviewing which took place after completion of the questionnaire indicated that none of the respondents were aware of demand characteristics in the experimental situation.

CHAPTER IV

DISCUSSION

The overall results of the experiment indicate that channel factors do indeed differentially influence the degree to which subjects will comply to a given persuasive message. Of the possible 13 inter-treatment comparisons, nine were in the predicted direction. Following is a discussion of each attitude change hypothesis with possible reasons for the obtained outcomes.

Hypothesis 1: The Audio condition will elicit greater attitude change than will the Print condition. The obtained post-treatment attitude ratings for this prediction were in the expected direction but not statistically significant. The mean post-treatment attitude rating for the Audio condition was 20.3 versus a 24.9 for the Print condition. This tendency for the Audio presentation to be more persuasive than the Print presentation is supported by previous studies (Cantril & Allport, 1935; Elliot, 1937; Knower, 1936) which consistently indicated a superior persuasive effect for aural messages.

The prediction regarding a higher persuasive effect for the Audio condition was based on an assumed comprehensibility difference between this condition and the Print condi-

tion. It was argued that tonal variation, pacing, and inflection would contribute to increased comprehension of the message in the Audio condition. Using ascribed source position scores and recall scores as measures which reflect level of comprehension, it should be noted that the two conditions did not differ on these variables.

An alternative explanation for the obtained results requires an examination of how the Print treatment of the current study differed from print presentations which characterized previous studies. Past research which has compared visual and aural messages has operationalized "print" as the printed page which is to be read by the subject. In the current study, the Print treatment consisted of moving print which appeared a few sentences at a time on a television screen. This difference in stimulus definition may be related to the current failure in obtaining a statistically significant difference between the Print and Audio conditions. The following consideration of Greenwald's "counterarguing" hypothesis should serve to clarify these speculations.

As applied to media differences, Greenwald's (1968) cognitive response model would predict a greater persuasion effect for aural messages than printed messages. The basis for this prediction is that "counterarguing" is more likely to occur for printed messages which can be read at a controlled speed and then reread for increased comprehension. This ability to carefully consider the arguments presented in a printed message is to some degree reduced when one becomes

the recipient of an aural message. Unlike the reader of the printed word, the recipient of aural messages cannot usually regulate the speed with which arguments are presented, nor can he require that certain points be reviewed for his further consideration. Hence, a person who hears a political speech may be thought to be less able to counterargue its contents than a person who reads the same speech in a newspaper. Given this difference in the ability of the two people to counterargue the speech, it is likely that the recipient of the aural message would be more susceptible to compliance with the message.

Applied to the current obtained results, this theory would partially explain the superiority of the aural presentation. The particular manner in which the Print treatment was operationalized (i.e., moving print on a television screen), however, reduces the respondents' ability to counterargue in that regulation of message assimilation and review of arguments was rendered impossible. The noted failure to demonstrate a statistically significant difference between the Print and Audio conditions may be related to the assumed equivalence of respondent capability to counterargue. It is thought that had the Print treatment been traditionally operationalized as the written word, the predicted significant superiority for the Audio treatment would have been demonstrated.

The hypothesis generated above could be investigated in a single 4-group design which would be comprised of the following treatments: (1) Control Group; (2) Written Word

Condition; (3) Moving Print Condition (i.e., identical to the Print condition in the current study); (4) Audio Condition (again, identical to that of the current study). Theoretically, the subjects' ability to counterargue the persuasive message would diminish as one moves from Condition 2 to Condition 4. Hence, it would be predicted that attitude change would increase as ability to counterargue decreases. This type of study would also have to measure subjects' cognitive responses to the various message presentations in order to insure that the theoretical speculations are indeed operating for the different treatments. Given that no such measurement attempts were made in the current study, the use of Greenwald's cognitive response model as an explanation for the obtained outcomes remains speculative.

Hypothesis 2: The mixed media conditions will elicit greater degrees of attitude change than will the single medium conditions. As stated in the Introduction, research in the area of learning has generally supported the notion that bimodal presentations lead to superior content retention than do single mode presentations. An additional study dealing with persuasion (Addis, 1970) extended these findings and concluded that audio-visual presentations are ~~more persuasive~~ than single mode presentations such as tape recordings or the written word.

The post-treatment attitude change results for the current study do directionally support the proposed superiority of mixed media presentations. In all but one case (i.e.,

the Complementary-Audio treatment), the mixed media conditions tended to effect greater compliance with the message than did the single mode conditions. The following considerations of other possible influence related variables may aid in the explanation of these results.

Recall of the contents of the persuasive message was consistently higher in the mixed media conditions than in the single mode conditions. This pattern is a replication of the Menne and Menne (1972) study which reported superior retention levels for multi-media presentations when compared to single mode instruction.

The use of recall data to explain the obtained results is, however, contradicted by both internal analysis of the present data as well as previous literature on the relationship between recall and attitude change. As noted in the Results chapter, correlations between message recall and final attitude were low and non-significant. In one instance (the Print-Audio condition), recall was found to be negatively correlated with the post-treatment attitude. These results would seem to indicate that as measured message recall did not contribute to final attitude. An additional argument against using recall as an important component of the persuasion process is that the previous attitude change literature has failed to demonstrate a consistent and unambiguous relationship between recall and persuasion.

A more probable explanation for the persuasive superiority of the mixed media conditions relates to the mea-

sured variables of perceived source position and ascribed source credibility.

Examination of the data on perceived source position indicates a more accurate comprehension of the source's attitude among those exposed to the multi-media presentations. In contrast, subjects exposed to the single medium conditions were less accurate in their assessment of the advocated position. On an overall basis, the pattern would suggest that the more accurately the advocated position is perceived the greater the likelihood of compliance to the message. Correlations between perceived source position and final attitude were low and positive for five of the six conditions. A high positive ($r = .74$) and statistically significant correlation was reported for these variables in the Distractor-Audio condition. Why this positive association should only characterize one condition is unclear. Its existence, however, does help in explaining the high level of influence reported for the Distractor-Audio condition.

Although the correlations between perceived source position and final attitude do not permit concluding that final attitude was a direct function of perceived advocacy, it seems logical that this variable be subjected to greater scrutiny in future studies. On an intuitive basis, it seems likely that perceived source position would be more closely related to attitude change than would message recall. The lack of association between recall and compliance in the current study is not surprising given that the learning of mes-

sage contents does not necessarily imply correct perception of the overall source position. As related to final persuasion effect, it would seem that degree of correct perception of the position advocated would be more important than the simple retention of message specifics. Future studies might seek to explore the relationship of message recall and perceived source position in order to determine which factor contributes more heavily to the final level of obtained persuasion.

Hypothesis 3: The Source-Audio condition will elicit greater degrees of attitude change than will the Print-Audio condition. The obtained results for post-treatment attitudes did not support this prediction. The Print-Audio condition showed a marginal superiority when compared to the Source-Audio condition. This result is surprising in that the visual presence of the source in the latter condition was thought to facilitate the influence process via the transmission of additional supplementary non-verbal cues.

Influence related measurements for the two treatment groups indicate the following patterns: (1) Source credibility was higher for the Print-Audio condition than for the Source-Audio condition; (2) Reported percent of time spent tending to the message was slightly higher in the Print-Audio condition; (3) Message recall, perceived source position, and estimated message length were virtually identical for the two treatments; and (4) Subjects reported paying more attention to what they saw in the Print-Audio condition.

It would seem that the best explanation for the relatively weak performance of the Source-Audio treatment lies in the ascribed credibility of the videotaped source. Of the six treatments, the Source-Audio condition ranked fifth in terms of credibility. This low evaluation is in all probability responsible for the lack of confirmation of the predicted results. It might be that the youthful appearance of the taped presenter and his introduction as an "expert" led to the relatively low ratings he received on the credibility dimension. Future studies which seek to compare bimodal Print-Audio and Source-Audio presentations should pretest for extreme perceptions of the source's credibility. The current results are ambiguous and no generalization regarding media or channel influence can be made.

Hypothesis 4: The Complementary-Audio condition will elicit higher levels of attitude change than either the Print-Audio or Source-Audio conditions. This hypothesis grew out of Barrow's communications theory which posits that influence is a positive joint function of potency and comprehensibility. It was thought that the visual component of the Complementary-Audio treatment would enhance the persuasive value of the message by providing additional supportive information beyond that contained in the aural component of the communication.

Surprisingly, the level of compliance to the message was lower in the Complementary-Audio condition than in any of the other mixed media conditions. It was additionally lower than the post-treatment attitude results for the Audio condi-

tion. None of the internal/diagnostic measures such as recall and perceived source position appear to be related to this relatively weak performance.

It can be argued that the visual component of the Complementary-Audio condition was rather vague and not clearly realized. The conceptualization of this treatment required that the visual part of the presentation both reinforce and expand upon the audio message. Apparently, the final stimulus did not live up to this goal with the end result that its ultimate persuasive power was reduced.

Hypothesis 5: The Distractor-Audio condition will effect higher levels of attitude change than will the Source-Audio condition. This final prediction was based on the 1964 Festinger and Maccoby study which demonstrated a heightened persuasive effect among subjects who were exposed to a message which was accompanied by an incongruous and distracting visual display. The results of the current study directionally support this previous finding: Post-treatment attitude for the Distractor-Audio condition was 16.8 versus a 19.6 for the Source-Audio condition.

As with previous internal diagnostic comparisons, it does not appear that recall of message specifics is related to the obtained outcome under discussion. The average correct recall score for the Distractor-Audio subjects was 63%, a full 10 percentage points lower than the obtained 73% for the Source-Audio subjects. This apparent lack of association between recall and level of post-treatment compliance would

tend to eliminate recall scores as a viable explanation for the greater persuasive impact of the Distractor-Audio condition.

Perception of the advocated position (i.e., perceived source position) was identical for both the Source-Audio and Distractor-Audio conditions. On this basis, this variable must also be excluded as a potential contributor to the obtained difference in persuasion.

Respondents' ratings of their subjective comfort during the time they listened to the message did differ between the Source-Audio and Distractor-Audio conditions. Those in the Source-Audio condition reported a greater degree of comfort than those in the Distractor-Audio condition. How this difference in reported comfort relates to the obtained persuasion results is not entirely clear. It may be, however, that a dissonance/effort hypothesis could apply. Following from Festinger's assertion that "one comes to love what one suffers for," it might be maintained that in the current study the Distractor-Audio subjects experienced a mild degree of dissonance in that they agreed to sit through an experiment which was somewhat tension inducing and which required a fair degree of involvement and effort. Their final assessment of their own attitudes toward the target issue may have been influenced by their previously experienced discomfort. Future research which relates to these speculations might operationalize different levels of discomfort and attempt to relate these levels to compliance with persuasive

messages.

The dissonance/effort hypothesis discussed above gains further support from the results which relate to reported direction of attention during the experiment. As outlined in the Method chapter, subjects in all conditions were required to indicate their estimated time spent attending to the message. Obtained results for this self-report indicated that the Distractor-Audio subjects paid more attention to the message than did the Source-Audio subjects. If this difference can be conceptualized as a difference in effort expenditure, the dissonance/effort hypothesis becomes a more attractive explanatory alternative which should be considered in future studies.

This review and discussion of the obtained results strongly suggests that the channel through which a persuasive communication is transmitted can have an influence on the ultimate persuasive effect of a given message. The current study has provided a useful and extendable conceptualization of channel contrasts which proceeds from simple single mode differences on through more complicated multi-media juxtapositions and comparisons. It may be that this conceptualization represents only part of the spectrum of potential message component combinations and that more sophisticated frameworks will have to be developed to keep pace of rapidly expanding communications technology. It is thought, however, that the present scheme can contribute to our overall understanding of the influence process by requiring researchers

to keep in mind the contribution of channel factors in their programs of attitude change research and to remind them that the generalizability of their findings are highly dependent on these factors.

In addition to the general scheme discussed above, the outcomes of the current study have provided a basis upon which to select areas of concentration for future studies. A particularly promising topic seems to be the manner in which visual components of a persuasive message either facilitate or inhibit the final level of subject compliance. Results from the current experiment suggest that multi-media presentations are generally more potent than single medium presentations. The challenge to future research, however, is to delve into more complicated comparisons within the framework of multi-media messages and to carefully operationalize and construct the relationships which can exist between the visual and aural components of these messages. It is thought that more refined and rigorous empirical investigations which address the hypotheses spawned by the current study will greatly enhance our understanding of how composite stimuli operate to influence and persuade.

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APPENDIX A

APPENDIX A

Health authorities have recently examined some of the basic tools of health diagnosis and made recommendations concerning the use of these tools. One such study has produced new information bearing on the question of radiation exposure. A general increase in the number of cases of leukemia has been reported as well as a general increase in the number of cases of sterility. It also has been pointed out that the average American is being exposed to more radiation, including radiation from chest X-rays for the detection of TB, than ever before. Let us examine some of the clinical evidence in more detail.

One major effect of frequent or large doses of radiation exposure is on the blood system. Paradoxically, this radiation can either increase or decrease the cell count of the leucocytes or infection fighting cells depending upon whether this radiation has been to the whole body or specifically to the blood system. With whole body radiation there is considerable growth of the leucocytes which then dominate the other cells. This condition is called leukemia. On the other hand, if the radiation exposure is specific to the blood system we have a decrease in the leucocyte count. This decrease can have two major detrimental effects. The first is

a condition known as hemophilia. The second effect is more frequent and is simply referred to as anemia.

Exposure to frequent radiation may have certain noxious effects on reproductive tissue. In the testes the primitive cells which produce spermatocytes are usually impaired first. In the ovaries the graffian follicles do not reach maturity. These latter two effects would, of course, facilitate sterility. If total sterility is not accomplished the possibility arises of breakdown of the chromosomes. This latter effect, as well as the increase in the number of gene mutations, is directly responsible for the increased number of birth defects reported in the United States. Considerable research has been done on X-ray exposure in lower animals with the result that gene mutations are quite unpredictable.

The incidence of TB tends to be restricted to those who have inadequate diets and consequently cannot be considered a health threat to the general population. Recent discoveries have been made in tuberculosis diagnosis which allow safe, sure methods for detection. The skin test is one such method that is rapidly becoming popular. This particular test involves no radiation, is easy to administer, costs very little, and is quite easy to interpret. This test is an example of the advances that medical science has made in the diagnosis of disease.

From the foregoing discussion, it can be seen that exposure to frequent radiation, including the small amounts of radiation present in the chest X-ray, can be very danger-

ous to health. It can cause leukemia (blood cancer), sterility, or birth defects. There also seems to be no reason why a person should expose himself to the dangers of chest X-ray examination each year for the detection of TB. For one thing, TB is a rare disease, and besides this there are safer tests being used, such as the skin test. Based on this evidence it seems reasonable to state that people should not take chest X-ray examinations for the detection of TB each year. The examinations should be taken as infrequently as possible and preferably not at all.

APPENDIX B

APPENDIX B
QUESTIONNAIRE COVER SHEET

(All Groups)

LOYOLA UNIVERSITY OF CHICAGO

RESEARCH FORM 4/5 1973

EXPERIMENT CATFISH

On the following pages you will be required to make several evaluations concerning a communication that you will hear during the experiment. Please fill in all the scales and guess if you have to.

PLEASE DO NOT OPEN THIS BOOKLET.

WAIT UNTIL THE EXPERIMENTER INSTRUCTS YOU TO DO SO.

PRINT the following information.

Name: Ronald S. Davis.

Sex: Male.

Age: 20.

Major in college: Psychology.

Approximate grade point average: 2.6.

(All Groups)

On this page we would like you to indicate your personal feelings about the truth of the statements listed below by circling the one number that best indicates your judgment of the truth of that statement. Notice that the larger the number, the more true the statement is judged; the smaller the number the more false it is judged.

Please respond to each of the four statements on this page by indicating your own personal opinion of the statement's truth. Answer the questions in the order presented, and do not skip any question. Work rapidly.

1. Everyone should get a chest X-ray each year in order to detect any possible TB (tuberculosis) symptoms at an early stage.

/ 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 /
 Definitely / Probably / Uncertain / Probably / Definitely /
 False False True True

2. Chest X-rays examinations for TB should be taken regularly and often.

/ 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 /
 Definitely / Probably / Uncertain / Probably / Definitely /
 False False True True

3. Even though one may not have any reason for suspecting TB, it is a good idea to have frequent chest X-ray examinations.

/ 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 /
 Definitely / Probably / Uncertain / Probably / Definitely /
 False False True True

4. All things considered, getting an annual chest X-ray for detecting TB is a very wise practice.

/ 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 /
 Definitely / Probably / Uncertain / Probably / Definitely /
 False False True True

SUBJECTIVE COMFORT SCALE

(Experimental Treatments)

People react differently to reading communications like the one you have just read. Please check the point on the scale below which indicates how you felt while reading the communication.

✓

<u>very</u> restless	<u>moderately</u> restless	<u>slightly</u> restless	<u>slightly</u> comfortable	<u>moderately</u> comfortable	<u>very</u> comfortable
-------------------------	-------------------------------	-----------------------------	--------------------------------	----------------------------------	----------------------------

(Experimental Treatments)

Below are listed a series of times. Please estimate the length of the communication you just heard and place a checkmark next to the time which best approximates your estimate.

30 seconds	_____
1 minute	_____
1½ minutes	_____
2 minutes	_____
2½ minutes	_____
3 minutes	_____
3½ minutes	_____
4 minutes	<u>✓</u>
4½ minutes	_____
5 minutes	_____
5½ minutes	_____
6 minutes	_____
6½ minutes	_____
7 minutes	_____
7½ minutes	_____
8 minutes	_____
8½ minutes	_____
9 minutes	_____
9½ minutes	_____

PERCEIVED ADVOCACY OF MESSAGE SCALE

(Experimental Treatments)

80

On this page we would like you to indicate, on the basis of the communication, what you think the author's feelings about the truth of the statements listed below would be. Listed below are four statements concerning chest X-rays. Beneath each statement there is a 15-point scale which ranges from "Definitely False" at the left to "Definitely True" at the right end of the scale. Respond by circling the one number that best indicates what you believe the author's judgment of the truth of that statement to be. Notice that the larger the number the more true the statement is judged; the smaller the number the more false it is judged.

Remember---please respond to each of the four statements on this page by indicating what you believe to be the author's personal opinion of the statement's truth; not your opinion. Answer the questions in the order presented, and do not skip any question. Work rapidly.

1. Everyone should get a chest X-ray each year in order to detect any possible TB (tuberculosis) symptoms at an early stage.

/ ~~1~~ / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 /
Definitely / Probably / Uncertain / Probably / Definitely /
False False True True

2. Chest X-rays examinations for TB should be taken regularly and often.

/ ~~1~~ / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 /
Definitely / Probably / Uncertain / Probably / Definitely /
False False True True

3. Even though one may not have any reason for suspecting TB, it is a good idea to have frequent chest X-ray examinations.

/ 1 / 2 / 3 / 4 / ~~5~~ / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 /
Definitely / Probably / Uncertain / Probably / Definitely /
False False True True

4. All things considered, getting an annual chest X-ray for detecting TB is a very wise practice.

/ ~~1~~ / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 /
Definitely / Probably / Uncertain / Probably / Definitely /
False False True True

(Experimental Treatments)

81

On this page, you will be required to complete a number of sentences which have been taken from the communication. Please fill in the blanks with the correct word or phrase. Try to be as accurate as possible.

1. A general increase in the number of cases of T.B. has been reported as well as a general increase in the number of cases of Radiation Sickness.
2. It also has been pointed out that the average American is being exposed to more Radiation, including X-Rays from radios for the detection of TB than ever before.
3. One major effect of frequent or large doses of radiation is on the blood system.
4. Paradoxically, radiation can either increase or decrease the cell count of the lymph or infection fighting cells.
5. With whole X radiation, there is considerable growth of the X which then dominate the other cells. This condition is called leukemia.
6. If the radiation exposure is specific to the lymph system, we have a decrease in the blood count. This decrease can have two major detrimental effects. The first is a condition known as leukemia. The second effect is more frequent and is simply referred to as leukemia.
7. Exposure to radiation may have certain noxious effects on surface tissue.
8. In the testes, the primitive cells which produce sperm are usually impaired first.
9. In the ovaries, the egg cells do not reach maturity.
10. The effects described in questions 8. and 9. facilitate leukemia.
11. The increased number of birth defects reported in the United States is a direct function of X-Ray mutations and breakdown of the Deoxyribonucleic Acid.
12. Considerable research has been done on X-ray exposure in lower animals with the result that X mutations are quite common.
13. The incidence of X tends to be restricted to those who have inadequate immunity and consequently cannot be considered a health threat to the general population.
14. A safer alternative to chest X-rays is the Skin Test.
15. X-Ray should be taken as infrequently as possible and preferably not at all.

CONSTANT-SUM SELF REPORT OF DIRECTION OF ATTENTION

82

(Experimental Treatments)

Please indicate the percentage of time you spent thinking about the factors listed below while you read the communication. Make sure your percentages sum to 100%. If any of the factors do not apply to you, just enter a zero on the line provided.

Percentage of time spent thinking about things related to what the communication was saying 100%.

Percentage of time spent thinking about the way the communication was worded 0.

Percentage of time spent thinking about other objects in the room 0.

Percentage of time spent thinking about things outside the experiment 0.

83.

Now please indicate your true feelings concerning the communication by completing the scales on the following page.

SEMANTIC DIFFERENTIAL RATING SCALES FOR MESSAGE

(Experimental Treatments)

unclear: ____:____:____:____:____:____: X: clear
 conclusive: ____:____:____:____:____: X: ____: inconclusive
 plausible: ____: X: ____:____:____:____: ____: implausible
 authentic: ____:____:____:____: X: ____: ____: fake
 fast: ____:____:____:____: X: ____: ____: slow
 bad: ____:____:____: X: ____: ____: ____: good
 informative: X: ____:____:____:____:____: ____: uninformative
 simple: X: ____:____:____:____:____: ____: complex
 boring: ____:____:____:____: X: ____: ____: interesting
 unknowledgeable: ____:____: X: ____:____:____: ____: knowledgeable
 persuasive: ____:____: ____: ____: X: ____: ____: unpersuasive
 relevant: ____:____: X: ____:____:____: ____: irrelevant
 hot: ____:____:____: X: ____: ____: ____: cold
 involving: ____:____: X: ____:____:____: ____: uninvolving
 invalid: ____:____: X: ____:____:____: ____: valid
 expensive: ____:____:____: X: ____: ____: ____: cheap

(Experimental Treatments)

85

On this page we would like to know how competent you feel the source whose biographical sketch you were given is to speak on the topic. Below are listed nine statements that range in order from completely incompetent to completely competent. Check the one statement that best expresses your feelings.

- ☐ 1. I would consider him completely incompetent to render an opinion on this matter.
☐ 2. I think this source knows very little about this topic.
☐ 3. I would question the value of the source's opinion on this matter.
☐ 4. I have some doubts about the source's competence on this matter.
☐ 5. I believe the source is adequate but hardly expert.
☒ 6. I would consider the source's opinion as useful.
☐ 7. I think this source has a good understanding of this topic.
☐ 8. I feel that the source's excellence in this field makes the source's opinion very valuable.
☐ 9. I would accept the source's judgment on this matter without question.

Below are listed some scales. On each scale check the space that best expresses your opinion about the source whose biographical sketch you were given. Guess if you have to.

1.

<u>extremely</u>	<u>somewhat</u>	<u>slightly</u>	<u>slightly</u>	<u>somewhat</u>	<u>extremely</u>
untrustworthy	untrustworthy	untrustworthy	trustworthy	trustworthy	trustworthy

2.

<u>extremely</u>	<u>somewhat</u>	<u>slightly</u>	<u>slightly</u>	<u>somewhat</u>	<u>extremely</u>
intelligent	intelligent	intelligent	unintelligent	unintelligent	unintelligent

3.

<u>extremely</u>	<u>somewhat</u>	<u>slightly</u>	<u>slightly</u>	<u>somewhat</u>	<u>extremely</u>
ignorant	ignorant	ignorant	expert	expert	expert

4.

<u>extremely</u>	<u>somewhat</u>	<u>slightly</u>	<u>slightly</u>	<u>somewhat</u>	<u>extremely</u>
respectful	respectful	respectful	disrespectful	disrespectful	disrespectful

5.

<u>extremely</u>	<u>somewhat</u>	<u>slightly</u>	<u>slightly</u>	<u>somewhat</u>	<u>extremely</u>
bold	bold	bold	timid	timid	timid

6.

<u>extremely</u>	<u>somewhat</u>	<u>slightly</u>	<u>slightly</u>	<u>somewhat</u>	<u>extremely</u>
energetic	energetic	energetic	tired	tired	tired

SELF-REPORT OF DIRECTION OF ATTENTION CHECK LIST

(Multi-Media Treatments)

Which of the following statements best describes your behavior during the presentation?

(Please check ONE)

I paid equal attention to what I saw and to what I heard during the presentation. _____.

I paid more attention to what I saw than to what I heard. _____.

I paid ~~more~~ attention to what I heard than to what I saw. _____.

APPENDIX C

APPENDIX C

TABLE 1

Attitude Change

	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Source</u>				
Treatment	6	1805.5	13.8	< .001
Error	133	130.6		

TABLE 3

Message Recall

	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Source</u>				
Treatment	5	1016.6	3.1	< .025
Error	114	330.3		

TABLE 5

Perception of Source Position

	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Source</u>				
Treatment	5	30.2	.38	<u>NS</u>
Error	114	78.7		

NOTE. NS = non-significant result.

TABLE 7
Estimated Length of Message

	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Source</u>				
Treatment	5	413.2	1.71	<u>NS</u>
Error	114	241.7		

TABLE 8
Subjective Comfort

	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Source</u>				
Treatment	5	.75	.41	<u>NS</u>
Error	114	1.83		

TABLE 10
Percentage of Time Attending To Message

	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
<u>Source</u>				
Treatment	5	707.8	1.25	<u>NS</u>
Error	114	563.4		

TABLE 11
Source Credibility

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Treatment	5	2.5	1.0	<u>NS</u>
Error	114	2.5		

APPROVAL SHEET

The dissertation submitted by Thomas A. Watkins has been read and approved by the following committee:

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Dec 17, 1976
Date

Homer H. Johnson
Director's Signature