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AN EXPERIMENTAL STUDY OF THE EFFECTS OF COMMUNICATOR CREDIBILITY AND ATTITUDE CHANGE ON SUBSEQUENT OVERT BEHAVIOR. BY- ARNOLD, WILLIAM E.

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THE RELATIONSHIPS OPERATING AMONG COMMUNICATOR CREDIBILITY, PERSUASIVELY INDUCED ATTITUDE CHANGE, AND SUBSEQUENT OVERT BEHAVIOR WERE IDENTIFIED AND ANALYZED. COMMUNICATOR CREDIBILITY WAS DEFINED AS THE EFFECT OF THE IMAGE OF A SPEAKER IN THE MINDS OF A LISTENING AUDIENCE PRIOR TO THE TIME OF UTTERANCE (ARNOLD, 1965). A TOTAL OF 734 COLLEGE STUDENTS ENROLLED IN A BASIC COURSE IN SPEECH SERVED AS THE STUDY SAMPLE. ONE-THIRD OF THESE STUDENTS HEARD A TAPE-RECORDED SPEECH ATTRIBUTED TO A HIGH INITIAL-CREDIBILITY SPEAKER. THE SECOND ONE-THIRD HEARD THE SAME SPEECH GIVEN BY A NEUTRAL-CREDIBILITY SPEAKER. THE SPEAKERS PROPOSED THAT STUDENTS SELECT THE ABSTRACTING OF JOURNAL ARTICLES AS A TERM PROJECT IN SPEECH. THE FINAL ONE-THIRD OF THE STUDENTS WERE ASSIGNED TO A CONTROL GROUP. STUDENT ATTITUDES WERE PRE- AND POST-TESTED, USING A PREPARED QUESTIONNAIRE WHICH CONTAINED ITEMS RELATED TO SPECIFIC ATTITUDES CONCERNING ABSTRACTING JOURNAL ARTICLES AND TO GENERAL ATTITUDES ON WRITTEN WORK. BEHAVIOR CHOICES WERE CORRELATED WITH THE POST-TEST ATTITUDE SCALE SCORES. THE RESULTS OF THE STUDY INDICATED THAT COMMUNICATOR CREDIBILITY WAS NOT EFFECTIVE IN PRODUCING CHANGE IN GENERAL ATTITUDES, BUT WAS EFFECTIVE IN PRODUCING CHANGE IN SPECIFIC ATTITUDES. HIGH INITIAL CREDIBILITY PRODUCED SIGNIFICANTLY MORE ATTITUDE CHANGE THAN NEUTRAL CREDIBILITY, WHICH IN TURN PRODUCED SIGNIFICANTLY MORE CHANGE OF ATTITUDES THAN WAS FOUND IN THE CONTROL GROUP. A STATISTICALLY SIGNIFICANT BUT LOW CORRELATION WAS OBSERVED BETWEEN SPECIFIC ATTITUDE CHANGE SCORES AND OVERT BEHAVIOR, SUGGESTING THAT ATTITUDE CHANGE IS NOT A PREREQUISITE FOR OVERT BEHAVIOR. (JH)

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CHAPTER I

INTRODUCTION

General Statement of the Problem

Probably the most important and long range research problem in the sphere of attitude theory has to do with the implications of attitude change for subsequent behavior.... Until a good deal more experimental investigation demonstrates that attitude change has implication for subsequent behavior, we cannot be certain that our change procedures do anything more than cause cognitive realignments or even, perhaps, that the attitude concept has any critical significance whatever for psychology (Cohen, 1964, p. 138).

Attitudes and attitude measurement have been an important part of the experimental work in Speech since the first reported study in 1924 (Collins, 1924). From that time until the present, attitude scales have been applied to speech research related to audiences. Although attitude measures have been discussed as predictors of overt behavior (Newcomb, Turner, and Converse, 1965), it can be noted that little has been done to discover what specific relationship exists between attitudes and overt behavior. Periodically researchers have pointed out this obvious lack of experimentation in the area of attitudes and overt behavior (Bray, 1950; Festinger, 1964; McGuire 1966).

The relationship of attitudes, attitude change, and overt behavior can be considered from two theoretical viewpoints. Attitudes can be viewed as predictors of behavior or they can be seen as hypothetical constructs (Secord and Backman, 1964). Both

of these views were considered by the researchers interested in attitudes and overt behavior.

When attitudes are considered as predictors of behavior, high correlations should be found between attitudes and behavior. Failure to find these high correlations indicates that an invalid measure of attitude was used. Studies that used attitudes as predictors of behavior are cited in the review of the literature later in this chapter.

When attitudes are seen as hypothetical constructs, these attitudes do not have to be the sole determinants of behavior. Overt behavior is the product not only of attitudes but of factors in the immediate situation in which the behavior is displayed (Newcomb et al., 1965; Secord and Backman, 1964). Individuals with the same attitudes may engage in a variety of behaviors. In the critical review of the literature studies are cited that considered other factors in addition to attitudes as determinants of behavior.

Another possible determinant of behavior is communicator credibility. Aristotle first stated the potency of communicator credibility or ethos in his Rhetoric (Cooper, 1932). The personal character of the speaker may be called one of the most important, if not the most important means of persuasion, that the speaker possesses (Cooper, 1932, p. 8-9). Aristotle divided his discussion of the personal character of the speaker into two factors. One factor related to the audience's antecedent impression of the speaker. The second factor related to the character of the speaker developed through the presentation of the speech. It can be clearly seen that

the first impression is formed before the moment of utterance. The second is formed and modified during utterance by the speaker (Arnold, 1965). Andersen and Clevenger (1963) called these two aspects the intrinsic and the extrinsic factors of ethos, respectively. Andersen and Clevenger concluded by saying:

Despite the great number of experimental studies relevant to ethos, the scope of this concept is such that the findings are not yet sufficiently numerous and sophisticated to permit definitive conclusions about the operation of [ethos] (1963, p. 7).

Furthermore, from recent research it was discovered that communicator credibility has a confounding effect on attitude-change research. McCroskey and Dunham (1966) and Holtzman (1966) discovered that in the experimental situation, the credibility of an unseen, unknown, tape-recorded communicator varied with the authority of the administrator or apparent "sponsor." They found that the unknown speaker had higher-than-neutral ethos when the speaker was presented in the classroom setting. It seems imperative that in any study that uses the classroom situation with the teacher present, the credibility dimension must be manipulated. The review of the pertinent literature contains studies of communicator (and sponsor) credibility.

A cursory examination of this literature led the writer to two questions. What is the relationship of attitude change and overt behavior? Second, what is the effect of communicator credibility on attitude change and overt behavior?

Review of the Literature

The pertinent literature was surveyed in two major topics:

- (1) research on the relationship between attitudes and overt behavior, and (2) research on communicator credibility relevant to attitude change and overt behavior. The following indices and bibliographies were used to guide this survey:

Psychological Abstracts (1950-- to date)

The Table of Contents of the Quarterly Journal of Speech, Speech Monographs, and the Speech Teacher (1964)

The Table of Contents of the Southern Speech Journal, Western Speech Journal, Central States Speech Journal, and Today's Speech (1966)

Andersen. K. and Clevenger, T., "A Summary of Experimental Research in Ethos," Speech Monographs (1963)

McGuire, W. "Attitudes and Opinions" in Annual Review of Psychology Volume 17 (1966)

Behavior Studies

The following studies are cited to elaborate the relationship between attitudes and subsequent overt behavior. These studies were concerned with two types of problems: (1) attempts to predict behavior from existing attitudes, and (2) attempts to change attitudes and thus change or produce a subsequent overt behavior.

(1) Predictive Studies

A classic study of the relationships between attitudes and overt behavior was the study by La Piere (1934). In the company of a couple from China, La Piere made an extensive tour of the United States, including the Pacific Coast, stopping in over 250 hotels and restaurants. They were refused service only once because of the

racial characteristics of the Chinese. After the trip La Piere sent questionnaires to each of the establishments asking them about their policies regarding the accommodation of Chinese clients. Over ninety percent of the replies indicated that they adhered to a policy of non-acceptance of such minority-group members. In this study the overt behavior of the hotel and restaurant operators was the reverse of their stated attitude. It was apparent that the stated attitude reflected business policy and not the attitude of the individual operator.

Bray (1950) attempted to predict behavior from two attitude scales. One hundred and fifty male subjects, whose scores on attitude inventories toward Jews and Negroes were known, participated individually in making oral judgments of light bulb movement, each in the company of a confederate of the experimenter. One-third of the subjects was assigned to a confederate designated "Jewish" and the remainder were assigned to a Negro confederate. The confederate gave the same fifty responses throughout the experiment. Nonsignificant correlations were found between the subjects' scores on attitude toward the confederates (Jewish and Negro) and the subjects' behaviors. Attitudes could not be used to predict behavior in this study.

Three observations were made regarding this study. First, the behavior situation did not represent real-life judgments. In the words of the experimenter, "the purpose, of course, obviated the possibility of a 'real life' behavior situation" (Bray, 1950, p. 67). Second, the experimenter failed to take into consideration

the fact that the conformity index introduced an uncontrolled variable. Conformity may have been a stronger variable than the original attitude as expressed on the questionnaire. Third, the answers given on the questionnaire represented generalized attitudes rather than specific attitudes about the confederate. It was entirely possible that these two attitudes were not the same. Although this study indicated that attitudes may be independent of behavior, it is relevant to the present research in that Bray attempted to predict behavior from attitude-scale information. He was not interested in changing attitudes or in the subsequent effect of the change on overt behavior.

"In the face of the steady stream of studies of the verbal dimension of attitudinal behavior, the paucity of investigations of the overt action correlates of such verbal behavior, is indeed striking" (DeFleur and Westie, 1958, p. 667). In the light of that statement, DeFleur and Westie attempted to discover the relationship between verbal attitudes and overt acts. Galvanic skin responses to race-relations stimuli were recorded for each subject. The subject was then interviewed on a variety of questions and situations regarding his feelings concerning Negroes. After the interview he was presented with an overt action opportunity. As a part of the race-relations stimuli, each subject viewed colored slides with interracial pairings of men and women. To provide the subjects with an action opportunity, they were told that similar sets of photographs were needed for further research. The subjects were then asked to sign a series of statements that represented different

degrees of commitment to the photography sessions. The experimenters believed that the signing of these statements was sufficient because of the significance of one's signature in the American tradition.

In this situation, there was clearly a greater tendency for the prejudiced persons than the unprejudiced to avoid being photographed with a Negro. The relationship is significant, suggesting some correspondence in this case between attitudes measured by verbal scales and an acceptance-avoidance act toward the attitude subject (DeFleur and Westie, 1958, p. 672).

However, the researchers discovered a number of prejudiced individuals who signed the statement without hesitation at the highest level of commitment and a number of unprejudiced persons who were unwilling to sign at any level of commitment.

DeFleur and Westie indicated that a better measure of overt action response is needed. Photograph authorization was a crude attempt to categorize the non-verbal action according to the degree of commitment. They suggested that individuals could be observed and their behavior categorized when given actual opportunities for physical contact with a Negro. Second, this writer questioned the use of the signature as a valid measure of behavior.

Brody (1965) attempted to investigate the relationship between maternal attitudes toward child rearing and family life and the observed behavior of the mother with her preschool child. Specifically, she was interested in whether the differences in attitudes which mothers expressed are related to differences in maternal behavior. Brody tested for the following attitude factors: authoritarian-controlling, hostility-rejection, democratic-equalitarian, disciplinarian, indulgent, protective, and rejecting. From

an examination of these seven factors, she hypothesized that different scores on these factors could be used to predict different observable behavior. In order to test this general hypothesis, Brody measured the attitudes of 50 mothers whose children attended a cooperative nursery school. Each mother and child was then placed in a playroom where the mother was told by the experimenter that she was interested in the play behavior of the child in the presence of the mother. Although the total pattern of results was in the predicted direction, each of the specific subhypotheses was only partly confirmed. Brody indicated that her data did not reveal a strong relationship between expressed maternal attitudes toward child rearing and family life and maternal behavior as observed in the experimental setting. Other uncontrolled variables like parental pride may have diminished a possibly strong relationship between maternal attitude and behavior.

One observation made by Brody seemed especially relevant to further research on the relationship between attitudes and behavior. The overall results suggested that attitude was only one of several components determining maternal behavior. Brody's conclusions suggest that two levels of attitude may have been operating. Brody considered general maternal attitude scales. She did not consider specific attitudes related to the immediate situation. Failure to consider specific attitudes may have resulted in the nonsignificant results.

The examples of studies described above are included only to clarify some pertinent variables that seem to operate in the

relationships of existing attitudes with related overt behavior. It should be noted that not all studies related to the prediction of behavior from existing attitudes have been included in this review. Most studies pertaining to the predictive ability of existing attitudes were not found to be specifically relevant to the present study of attitude change and subsequent overt behavior.

(2) Change Studies

Fleishman, Harris, and Burt (1955) attempted to change attitudes and thus change subsequent overt behavior with a two-week leadership training course for foremen in industry. Although the foremen were exposed to a series of communications, Fleishman et al. labeled all of the discussion and lectures during the two weeks a "persuasive communication." The men exposed to the communications, as well as a control group, were given pre- and post-measures of attitudes toward leadership. The investigators proceeded to obtain a subsequent on-the-job behavioral measure. This measure was taken to determine whether or not the foremen followed the behavior pattern suggested in the series of communications. The experimenters found a significant change of attitude in the desired direction within the group exposed to the communications. However, the experimental group did not follow through on the suggestions made in the communications. This resulted in no very consistent differences in behavior between the group of foremen exposed and the group not exposed to the two-week training session. Furthermore, Fleishman et al. divided the experimental group into those who had most recently had the course and those who had taken

it earlier. They reported that those foremen most recently trained were lower in the desired behavior than the group which had not been exposed to any training. Because this study did not involve a single exposure to a persuasive communication, there were no controls over the activities the subjects engaged in during the two weeks of communications.

Maccoby, Romney, Adams, and Maccoby (1962) investigated a sample of mothers, each of whose only child was between three and twelve months old. In an interview, each of the mothers was asked her belief about the age at which toilet training of the child should begin. During a period of three weeks, half of the mothers were exposed to a written communication and then reinterviewed. The other half were not exposed to the persuasive communication but were reinterviewed. After six months all the mothers were again interviewed for a determination of the decay of the opinion change. One year after the initial interviews, the mothers were reinterviewed on the assumption that they had begun toilet training. They were asked at what age they had begun training their children. Clear and persistent changes in opinion had no detectable effect on behavior. This study had several limitations. No mention was made concerning the statistical tests used to discover whether the difference in attitude change between the control and experimental groups was significant. Second, no indication was given as to the closeness of the mother's original opinion concerning toilet training and that advocated in the persuasive communication. Third, no mention was made concerning the possibility that uncontrolled counter messages

occurred during the year before the mothers attempted to train their children.

A study by Leventhal and Niles (1964) was closer to the core of the relationships between attitude change and subsequent overt behavior. They attempted to investigate the effects of fear-arousing communications on actual behavior and, at the same time, to examine the relationship between stated intention (attitudes) and behavior. This study departed from the usual laboratory pattern in that it was conducted in a natural setting and used a nonstudent population representing wide ranges of ages, occupational roles, educational levels, and socioeconomic groups. Eighteen groups of 15 to 49 subjects were tested in an after-only design with all measures obtained following the experimental treatments. Subjects in the experimental conditions were shown a color motion picture which presented the story of a young family man whose chain smoking apparently led to lung cancer and to the ultimate removal of his lung. After the presentation of the movie, the experimenter recommended that each of the subjects obtain a free chest x-ray. Subjects were then given a booklet on smoking. After reading the booklet, all subjects completed the questionnaire. In order to get a measure of behavior, the experimenter obtained a list of those who received an x-ray from the mobile unit situated next to the theatre.

Leventhal and Niles (1964) found a high correlation between the intention to take the x-ray and the actual taking of it. However, they placed several qualifications on their results.

The action could be taken immediately after the communication. The x-ray was free, took little time, and did not require a complex conceptualization of the situation. A far more serious qualification concerned their measure of behavior. Did they measure an attitude or a behavior with the questionnaire? In the DeFleur and Westie study (1958) reviewed earlier, the experimenters used a written commitment for the actual behavior. The Leventhal and Niles "intention" to take an x-ray may have been similarly a measure of behavior more than one of attitude.

Greenwald (1965) was interested in learning whether a written persuasive communication which caused a change in attitude could also cause a change in behavior. In a series of four experiments, he investigated the relationship between attitude change and behavior change with a junior high school population. In all experiments, the communication produced change in attitude and change in behavior in the desired direction. Greenwald (1965) did not conclude that attitude change produced the behavior change because the posttest behavior measure was taken before the posttest attitude measure. Therefore, no meaningful conclusions can be drawn from this study about the effect of attitude change on subsequent overt behavior.

In his last two studies Greenwald (1965) administered a delayed test of behavior and attitude. He did not find a decay in the amount of attitude change or behavior change after a lapse of two weeks between the posttest and the delayed test.

Three observations were made concerning the relevance of

these experiments to the present study. First, Greenwald (1965) was interested in behavior change not subsequent, overt behavior following from attitude change. Second, he did not attempt to correlate the amount of attitude change with the measure of behavior. Therefore, he could not derive information regarding relationships between attitude change and behavior change. Finally, the sponsorship effect discussed earlier may have had a significant confounding effect upon the obtained results.

Although researchers interested in consumer motivation have attempted to study what relationship attitudes have with purchasing behaviors, there was a scarcity of reported studies under the rubric of Motivational Research. Despite this paucity of reported studies, three researchers drew similar conclusions.

Pollitz stated:

... that to predict reaction one must study reactions, and these are not the same as opinions, attitudes, motives; the latter are of interest only to the extent that they happen to reveal reactions. Reactions are results, not causes, and they reflect many stimuli other than attitudes, motives, preferences; the latter cannot be assumed to be the determinants of what consumers will do (1957, p. 118).

Mueller drew the same conclusion. "On the whole, consumer expenditures on food, shelter, and other necessities as well as spending on most services seem to be influenced very little by fluctuations in financial variables or in attitudes" (1962, p. 32). Katona concluded that "...attitudes do not influence every type of action all the time. At certain times it is ability to buy which is relevant. Even when attitudes change independently from changes

in income, certain forms of action are habitual and are not influenced by attitudes" (1950, p. 254).

Under actual experimental conditions Udell (1965) attempted to determine what relationship existed between consumers' attitudes and their behaviors concerning trading stamps. In four areas of the Midwest, Udell interviewed consumers to determine their attitudes toward trading stamps and their stamp-saving behavior. From the results, he concluded that the Thurstone attitude indexes are predictive of the stamp-saving behavior of the respondents.

As Udell was interested in the predictive nature of the attitude measures, no attempt was made to explore attitude change. Second, Udell did not observe the actual stamp-saving behavior of the subjects. As in the DeFleur and Westie study reported earlier, a verbal indication of behavior was requested from the respondent.

In summary, the literature revealed that attitudes may have some effect on overt behavior, but a one-to-one relationship between attitudes and overt behavior does not seem to exist. Unfortunately, only four studies could be found that are specifically concerned with the relationships between attitude change and overt behavior. These studies do not warrant any general conclusions regarding these relationships.

From the critical review of the literature, it was discovered that certain problems must be solved or at least accounted for in any further research on attitude change and subsequent overt behavior. A study of attitude change and behavior must control the exposure of subjects to relevant variables. Studies must control for possible

exposure to counter persuasion. Valid indicators of behavior are needed. Distinctions need to be made between generalized attitudes and specific attitudes toward the concepts studied.

With these suggestions in mind, it was necessary to consider the literature related to the second major variable--communicator credibility.

Communicator Credibility Studies

Andersen and Clevenger (1963) provided an excellent summary of almost all of the credibility studies reported in the literature through June, 1963. They concluded their review by stating "...the finding is almost universal that the ethos of the source is related in some way to the impact of the message" (1963, p. 77). In order to comprehend their conclusion and to understand the credibility component of the present study, it was necessary to examine the relevant studies reported by Andersen and Clevenger and those relevant studies reported after the publication of their article.

Franklyn Haiman (1948) played an identical tape-recorded speech to three different groups of listeners. A different introduction was given the speaker for each group. One group was told that they would hear Thomas Parran, Surgeon General of the United States; a second group was introduced to Eugene Dennis, the Secretary of the Communist Party in America; and the third group thought that they heard a "Northwestern University Sophomore." As measured by a Woodward Shift-of-Opinion Ballot, the speech with an introduction to Parran was significantly more effective in producing attitude

change than either of the other two. This study was replicated by Strother (1951). He found the same significant difference between the "Parran" and "Dennis" speeches. There was no difference between the effects of the "Sophomore" and the "Parran" speeches.

In a similar study, Paulson (1952) found that a taped speech attributed to a political science professor produced significant opinion change for the men in the audience. Neither the speech attributed to the professor nor that attributed to a student produced significant opinion change for the women in the audience.

Aronson, Turner, and Carlsmith (1963), using the initial credibility of the communicator as a variable, found that the highly credible source was able to produce significantly more attitude change than the source with low credibility. This study, like the studies previously mentioned, assumed that the credibility of each of the communicators was different without previously validating the ethos levels of the two introductions.

Several studies were conducted to discover the effects of the initial credibility of communicators on delayed measures of attitude change. Those studies are pertinent to a discussion of the decay of attitude change.

Hovland and Weiss (1951) held all of the elements of a message constant except the factors that were expected to affect the credibility of the speaker. The subjects that were exposed to the speech of the highly credible source shifted in significantly greater numbers on the immediate posttest than those who heard the less credible source. After a one-month delay, the effect on

attitude change of the highly credible source had diminished. At the same time, subjects who were exposed to the less credible source were found to have moved toward agreement with the attitudes expressed by that source without further stimuli. This has been called the "sleeper effect" (1951, p. 650).

To test this sleeper effect, Kelman and Hovland (1953) set up a similar experiment. They found that a highly credible source produced significantly greater shifts of opinion than the less credible source.

The initial effect of the communication on the opinions of the subjects was greatest when presented by the positive communicator and the least when presented by the negative. The neutral was in between the other two. Over a three week period under nonreinstatement conditions there was a decline in the extent of agreement with the positive communicator and an increase in the negative (1953, p. 334).

Unlike the previously cited studies, Kelman and Hovland's confirmed the differences among the effects of the three introductions.

Unfortunately, they reported measures of differences among the three introductions taken after the communication so there was no indication of the initial credibility of the three different introductions.¹

As McCroskey (1966) reported, the communication itself affects source credibility. He found that speakers on all three levels of credibility, as established by pretesting before the communication, were higher in terminal credibility after the persuasive communication.

The speech in the Kelman and Hovland study probably had an effect on

¹In a conversation, Walter Weiss indicated that with unknown speakers, the credibility levels were measured prior to communication although this fact was not reported in the literature.

the credibility level of the three hypothetical speakers.

In the Leventhal and Niles (1964) study reported in the preceding section, an attempt was made to manipulate communicator credibility with the persuasive message in order to produce opinion change. Unfortunately, no conclusions were drawn from the credibility data because the credibility dimension was confounded with the fear dimension. The high credibility communication was also the high fear communication.

All of the studies mentioned thus far were primarily concerned with the effect of initial ethos or communicator credibility on attitude change. The conclusions cited in the review of the literature supported Aristotle's observation that communicator credibility is one of the most important factors in persuasion and that ethos has at least two dimensions: antecedent influence and influence generated during the message.

Except for the Leventhal and Niles (1964) study cited earlier, the literature lacked studies concerned with the effects of communicator credibility on overt behavior as a result of attitude change.

In summary of this critical review of the major research findings, two major conclusions can be drawn. (1) Results from the cited research leave the relationship between attitude change and subsequent behavior in question. Although researchers took steps in the direction of discovering possible relationships between attitude change and behavior, no firm conclusions were established. Further experimentation is needed to add to present knowledge in this area. (2) Experimentation indicates that the initial

credibility of the communicator is a prime factor in the determination of attitude change resulting from a persuasive communication by that communicator. In almost all of the experimentation reviewed, researchers failed to establish the initial level of credibility before presenting the communication. The researcher who does not manipulate credibility cannot be sure whether his results have been contaminated by that potent factor.

Statement of the Problem

The present study was an attempt to discover what relationship persuasively induced attitude change has with subsequent overt behavior. Specifically, (1) it was an attempt to discover whether attitude change could be used to predict a subsequent overt behavior, and (2) it was an attempt to control and manipulate the initial credibility of a communicator in order to discover what effect credibility of a source might have on attitude change and overt behavior. Finally, (3) it was an attempt to discover what interaction operates among communicators' credibility, attitude change, and subsequent overt behavior.

Before a satisfactory discussion can be presented concerning the questions and hypotheses for this study, several terms must be defined. Communicator credibility is defined as the effect of the image of the speaker in the minds of the listeners prior to the time of utterance (Arnold, 1965). It should be pointed out that the term, communicator credibility, will be used interchangeably with ethos and image. All three terms as they will be used here refer to the initial image as described earlier. Credibility generated during

the speech was not at issue in this study. Opinion and attitude do not have consistent meanings in the literature so they are used interchangeably. In general they are "...viewed as verbal 'answers' that an individual gives in response to stimulus situations in which some general 'question' are raised" (Hovland, Janis, and Kelly, 1953, p. 7). Behavior is defined as an action response to a situation that can be observed.

Two different levels of attitude response were considered in this study. There was a general attitude level and a specific attitude level. For example:

General Attitude: Written work in speech is a waste of time.

Specific Attitude: Written reports on three outside-of-class speakers is a waste of time.

Therefore, it was concluded that any hypothesis relating to attitude change must consider both general attitude scale scores and specific attitude scale scores.

From the review of the pertinent literature, it was predicted that the initial credibility of the communicator would make a difference in the amount of attitude change on both attitude levels. With this in mind, the following hypotheses were tested:

1. Speakers of high initial credibility produce greater immediate general attitude change in an audience than speakers of low initial credibility.

2. Speakers of high initial credibility produce greater immediate specific attitude change in an audience than speakers of low initial credibility. These two hypotheses replicate some of the

previous research on communicator credibility. Only the McCroskey (1966) report indicated that the ethos level of the speaker was measured before the speech.

A similar hypothesis concerning overt behavior was tested:

3. Speakers of high initial credibility produce greater immediate overt behavior responses in an audience than speakers of low initial credibility. Because there was no reported study except that by Leventhal and Niles (1964) on the effect of communicator credibility on overt behavior, this hypothesis was based on the research conducted with credibility and attitude change.

A clear relationship between attitudes and behavior has not been established by studies found in the psychological or motivational research literatures. Therefore, the hypotheses that were tested in this study did not differ from the hypotheses suggested in the literature. Rather than concentrating on existing attitudes and subsequent behavior, the question of attitude change and subsequent overt behavior was considered more important for speech research, particularly in the area of persuasion. With this in mind the following hypotheses were suggested.

4. If listeners change their general attitude in the desired direction, the appropriate overt behavior follows.

5. If listeners change their specific attitude in the desired direction, the appropriate overt behavior follows.

From the implications of the Brody (1965) study, it was expected that a general attitude would not be a good predictor of overt behavior.

The sleeper effect for attitude change could not be tested in this particular study because it was not possible to have a delayed measure of the change without contamination by the subsequent overt behavior response. Kelman and Hovland (1953) found that by reinstating the source, the retained opinion change was greater for the high ethos source than for the low ethos source. The reissuing of the attitude scale may have had the same effect on the overt behavior response. However, an effect of a time delay on behavior was tested with the following hypotheses:

6. Communicators with high initial credibility and those with low initial credibility are equally successful in affecting a delayed post communication behavior response in listeners.

7. When a delayed measure of behavior is taken there will be no difference in the overt behavior of those exposed to the persuasive communication and those who were not exposed to the communication.

8. More listeners will engage in the desired behavior when an immediate behavior response is given than when a delayed behavior response is given.

Chapter II presents methods and procedures employed in this study. It includes the results of the pretesting of the instruments and questionnaires. Chapter III reports the results of the main study. Chapter IV contains a discussion of conclusions, implications, and suggestions for further research.

CHAPTER II

METHODS AND PROCEDURES

In this study an attempt was made to discover relationships operating between persuasively induced attitude change and subsequent overt behavior. A persuasive communication was presented to students in the basic speech course at The Pennsylvania State University during the Fall of 1966. The tape-recorded communication was introduced in order to establish the desired initial credibility. Students from forty-two sections of the basic course served as subjects for this experiment. Audience attitudes were measured by means of a pretested Likert-type attitude scale.

Subjects

The subjects for all pretesting and for the main experiment were drawn from the same student population. These subjects were first- through twelfth-term students. All participants were enrolled in the required introductory speech course at The Pennsylvania State University.

These subjects were randomly selected in a cluster fashion. In other words, entire sections of Speech 200 students were randomly selected since it was necessary to conduct the experiment in the classroom.

For the pretesting of the attitude and behavior measures, two randomly selected sections of Speech 200 students served as

subjects during the Summer Term of 1965. Students from eight sections of Speech 200 were used for the pretesting of speaker introductions. Four sections were used during the Spring term, 1965, and four during the Summer term, 1965.

At the beginning of the Fall term, 1965, forty-two sections of Speech 200 students were randomly assigned by sections to one of the six cells of the factorial design used in the main study. No attempt was made to assign the sections of subjects on the basis of any variable except sex. The writer assigned an even proportion of males and females within each of the six cells of the design. Further assignment procedures will be discussed later in this chapter under the heading "Main Experiment."

Development and Testing of the Communication

To present the subjects with an effective communication, four factors were considered. First, a suitable topic was selected. Second, a suitable speaker was selected. Third, introductions for the speaker were developed and tested in order to vary the communicator credibility factor. Finally, an appropriate speech stimulus capable of inducing attitude change was developed.

1. Topic. The general subject of term projects was selected, because it lent itself to experimental manipulation. Since all students were required to do some kind of a written project assigned by their instructor, the topic of term projects was considered to be salient to students' perception of the class situation. Further, it was felt that the students were more

ego-involved with the topic, because it was normal assignment in their speech courses. Finally, it was felt that more cooperation could be obtained from instructors if the experiment did not disrupt the classroom routine.

2. Speaker Selection. A speaker was selected who would be effective with a college population. This speaker sounded like the typical student in the basic course in speech. To insure that such a speaker was obtained, the following pretesting was conducted.

The voices of five graduate students in speech were taped and presented to three sections of Speech 200 (n = 48). Each graduate student recorded approximately two minutes of text from an issue of Consumer's Digest. These recordings were played in random order to the three sections of students in Speech 200. After listening to the tapes, the subjects were asked to indicate their estimates of the ages of the speakers. They were provided three categories for response: "under 25," "between 25 and 50," and "over 50." Table I indicates the results of this pretest. Speaker number two was chosen to record the speech because the subjects' ranking of him indicated that he was considered by most subjects to be under 25.

TABLE 1
Pretest of Speakers' Voices

Speaker Number	Under 25	25 to 50	Over 50
1	14	21	13
2*	38	9	1
3	9	39	0
4	12	22	14
5	7	20	21

*Speaker Selected

3. Selection of the Introduction. Introductions yielding established high and low initial credibility were developed. To insure that these introductions produced the desired ethos levels, they were pretested in situations nearly identical with the conditions of the major study.

In all of the pretesting situations the subjects were led to believe that they were to hear a tape-recorded speaker. The subjects were told that research was being conducted by the Department to find examples of good and poor speeches that could be included with material for future sections of Speech 200. After this introduction to the experiment was given, the introduction to the speaker was read by the experimenter. After the introduction to the speaker, the subjects completed the Likert-types scales

concerning the speaker they thought they were about to hear. After filling out the scale, the subjects were dismissed. This procedure was used for all pretests.

Likert-type scales used for the establishment of the credibility levels were developed and tested by McCroskey (1966b).

Table 2 reports the results of the pretesting. Mean authoritativeness and character ratings for all pretests for the two levels of credibility are reported. The results were somewhat unexpected. It was found that no introduction presented to the students produced low credibility for both ethos factors tested. Perhaps the sponsorship effect prevented the students from making a judgment of low credibility. The other possibility was that the subjects would not accept the characteristics attributed to the "low credibility" speaker as characterizing a member of their peer group. Nevertheless, the differences between both the mean authoritativeness ratings and the mean character ratings for the "two speakers" were statistically significant ($p < .001$). Therefore, the differences between the two introductions were sufficient for the manipulation of source credibility in the main experiment. (See in Appendix B.)

4. Selection and Development of the Speech Stimulus.

A tape-recorded message was selected to avoid many factors that otherwise might have given listeners uncontrolled clues concerning the speaker's background and character. These factors could not be excluded in television or by motion pictures. Characteristics, attributed to the speaker by means of the introduction, could be

TABLE 2

Pretest Credibility Levels Established For Introductions

Source	Trial I		Trial II		Trial III	
	\bar{X}	N	\bar{X}	N	\bar{X}	N
High Ethos						
Character	48.417	12	42.267	15	42.300	20
Authoritativeness	56.417	12	49.467	15	50.100	20
Low Ethos						
Character	60.188	16	59.758	33	58.500	18
Authoritativeness	71.750	16	70.303	33	77.220	18
Hypothetical Neutral Point						
Character	60.000		60.000		60.000	
Authoritativeness	66.000		66.000		66.000	

Note: The lower the score, the higher the perceived authoritativeness and character.

denied by the use of live, video-taped, or motion picture techniques. Live presentation was liable to greater fluctuation each time that the speech was presented. In the main experiment, the speech had to be presented twenty-eight different times. Frandsen (1963) examined the interrelations of taped, televised, and live presentations of two messages. He concluded that all three media produced similar opinion shifts toward the communicator's position. The amounts of immediate recall were not significantly different for the three media ($p < .05$). No medium produced a significantly greater shift of opinion than the other two media. Therefore, it was decided that the taped recorded presentation would be most suited to this study.

As previously stated, the speech discussed term projects in Speech 200. However, it was necessary to decide the exact nature of the project that the speaker would advocate. In order to find the most appropriate project, the writer examined lists of projects used by members of the Speech Department. From these lists, four projects were selected for further pretesting to determine which specific project was unpopular enough to be advocated. Selection of a project could then depend on the persuasive effect of the speech and not on preferences inherent in the project itself. These four projects were: to abstract journal articles, to write a term paper on the role of communication in the person's major field of interest, to write a book report, and to write reports of evaluation on three outside-of-class speakers.

A pretest was conducted to determine the relative difficulty

of these four projects. Students in a section of Speech 200 ($n = 11$) were asked to read a short statement about each of the projects and then rank the four projects according to perceived difficulty. The median ranked difficulties of these projects are reported in Table 3. The "role of communication" project and journal-abstraction project tied with a median rank of 2. Further pretesting was indicated by these equivocal results.

TABLE 3

Median Ranked Difficulty of Term Projects

Project	Median Rank
Book Report	3
Abstract Journal Articles	2
Role of Communication	2
Outside-of-Class Speakers	3

Note: The lower the rank, the more difficult the project seemed to the subjects.

The project materials were rewritten and distributed to students from two sections of Speech 200 ($N = 31$). These students were asked to read the material and to rank the projects according to difficulty and desirability. Also, the students were asked to rank the project in order of their personal preference for assignment. The median ranks of these projects are reported in Table 4. The

abstraction of journal articles ranked lowest in desirability, lowest in preference, and highest in perceived difficulty. It was therefore decided that the speech should contain material which advocated abstracting journal articles as the term project. It was decided that the revised written material on the four term projects was adequate for the main study. The material was accompanied by a cover letter introducing students to a new procedure for term project selection. The letter and the material appear in Appendix C.

TABLE 4

Median Ranks for Term Projects

Project	Most Desirable	Most Difficult	Most Preferred
Book Report	3	3	3
Role of Communication	1	2	1
Abstract Articles	3	2	3
Outside of Class Speaker	2	3	2

A speech was written which advocated abstracting journal articles as the best term project. The writer attempted to develop a speech with the listeners in mind. References were made to specific topics with which Pennsylvania State University students were familiar. References were made to the crowds that attend lectures in Recreation Hall. References were also made to the mutilation of

library books and other materials.

Two members of the Speech Department faculty criticized a draft of the speech. Revisions were made with their suggestions in mind. The text of the speech appears in Appendix A.

In summary, a persuasive speech was constructed advocating abstracting journal articles as a speech term project. Two introductions of high and neutral initial credibility were developed and pretested. The speech was recorded by the selected graduate student in Speech as the speaker.

Attitude Measures

To derive attitude and attitude change data, a Likert-type scale was selected for three reasons. First, a multiplicity of attitudes can be simply and speedily discovered with the Likert scale; the same advantages are not inherent in the semantic differential or the Thurstone scale. Second, Likert-type scales can be disguised by inclusion in a general course evaluation questionnaire. Third, a Likert-type course evaluation questionnaire has already been used and tested with a similar sample (Dick, 1965).

Development. The original scale developed by Dick (1965) contained fifty items related to course content, the instructor, the method of instruction, and the textbook. This questionnaire was general enough to permit its use in any basic college course. The split-halves reliability of this questionnaire was reported as always above .90 and generally between .93 and .94 (Dick, 1965, p. 7).

Several modifications were made in the original course

evaluation questionnaire. First, the items used in the final questionnaire were written to include references to speech class material. The original questionnaire made no references to any particular class. It could have been used in psychology, biology, or mathematics classes. The rewritten questionnaire made references to Speech 200. In this way, the questionnaire could be administered as having Department of Speech sponsorship. Second, 24 questions were removed from the original questionnaire. Fourteen questions were substituted which related to the term project and written work in Speech 200. Six of these items related to written work in general. The other eight related to the four specific term project alternatives. Both negative and positive forms of the questions were included so that consistency of response could be checked. The final 40-item questionnaire used in the study is reproduced in Appendix D.

Pretesting. Pretesting was scheduled to check the reliability of the attitude scale. Students from two sections of the basic course served as subjects during the Summer Term, 1965. During the first week of the academic term, students in each of these sections were given the written material concerning the term project choices. On the next class day they were given the attitude questionnaire. The subjects were told that the Speech Department was interested in the attitudes of students enrolled in the basic speech course. They were told also that the information received from the questionnaire would help the Department assess the value of the course. Finally, they were told that the questionnaire would be given periodically throughout the term and that the responses would

not affect grades in the course.

The experimental speech was presented to each of these sections during the third week of the term. One section of students heard the speech attributed to the high credibility source. No source was given when the speech was presented to the other section. After the experimenter left the room, the instructor told his class that the Speech Department had asked him to distribute the Course Evaluation Questionnaire again.

Pre- and posttest responses for both sections were scored. Correlations of the scored responses were arranged in a matrix containing each item's correlation with every other item.² This correlation procedure provided data for split-halves reliability estimates for the total questionnaire as well as for the eight specific items and the six general attitude items. The inter-item correlation data were submitted to factor analysis to discover the amount of variance accounted for by each derived factor of the Course Evaluation Questionnaire. These results were submitted to varimax rotation to determine the loading of each item on the factors discovered by factor analysis. Finally each of the 14 items was correlated with the total score of the 14 items.

From the factor analysis of the responses, two significant

²All computations were made with the assistance of The Pennsylvania State University Computation Center. Special programs were developed for scoring the attitude scale. All other computations were made with the aid of the Computation Center Library programs. The statistical procedures used in this study were taken from Edwards (1954) and Winer (1962).

factors emerged. The first factor which accounted for 25.57% of the variance could best be described as a "Course Content" factor. The second factor which accounted for 23.30% of the variance could best be described as the "Project" factor. The factor analysis revealed that all 14 items related to written work and term projects had high factor loadings on this second factor. None of the other 40 items had high loadings on this second factor. More than one factor reflected the writer's intention of using an attitude scale which would disguise the real purpose of the instrument. The important consideration was the factor loadings of the written work and term project items. As all of these items had high factor loadings on the second factor, further revision did not seem necessary. (See Table 5.) All item-total correlations were above the minimum of .5.

The split-halves reliability for the total attitude scale was .945.³ The Hoyt reliability estimate was .907.⁴ The corrected split-halves reliability estimate for the six general items was .953. The Hoyt estimate for the same six items was .917. The corrected split-halves reliability estimate for the two items related to the term project of abstracting journal articles was .919. The Hoyt reliability estimate for the same two items was an identical .919. It was concluded from the pretesting of the attitude

³See Guilford (1954) for a discussion of the correction formula by means of the Spearman-Brown method.

⁴See Guilford (1954) for a discussion of the Hoyt Reliability estimate.

TABLE 5

Factor Loadings of General and Specific
Attitude Items: Pretesting

Source	I	II	Factor* III	IV
General Attitude				
3	-06	-79	-22	-01
6	29	-80	-16	-02
12	05	-82	-32	-18
18	19	-82	-32	10
21	-11	-82	-12	-21
28	-04	-47	-50	-13
Specific Attitude				
8	-02	-74	09	25
14	-03	-80	-08	-30
20	07	-74	-25	20
25	-09	-81	16	01
27	-04	-72	-12	15
32	-02	-73	02	38
35	01	-84	03	-30
40	00	-61	-07	34

*The decimal points have been removed for easier reading.

scale that the scale was adequate for the main study.

Experimenters cannot be certain that they are validly measuring a given attitude. At best, scales provide attitude change scores. The important question was: Did the attitude scale reliably measure change? The dependent variable in the main study was the attitude score based upon the hypothetical construct-attitude. However, two types of validity apply to this attitude measure.

First, content validity was claimed for the Course Evaluation Questionnaire. The original items were selected on the basis of their relevance to the course objectives and procedures (Dick, 1965, p. 7). Data from the factor analysis and varimax rotation analysis indicated that the items did, in fact, cluster together in independent reliable factors. Factorial validity could be claimed on the basis of those results. It seemed reasonable to conclude that this attitude scale was a reliable and valid operational measure of the hypothetical construct-attitude.

Recording of Behavior

For half of the experimental subjects, behavior was recorded on a check sheet (See Appendix D) immediately after hearing the persuasive speech. Comparisons were made of the immediate check-sheet responses with the actual behavior. The choice of the other half of the subjects became known and was recorded only when their projects were submitted in the seventh week of the term.

Main Experiment

The main experiment was conducted during the Fall Term, 1965. Forty-two sections were randomly assigned to one of the three main levels of the design. The large number of sections made it possible to distribute them for any random effects resulting from the time of day and from the days on which the classes met. Fourteen of these sections were assigned to the high credibility conditioned. Fourteen of these sections were assigned to the neutral credibility group. The remainder served as the control group. Finally, seven sections at each level were randomly assigned to the immediate behavior group. The remaining seven at each level were assigned to the delayed behavior group.

On the first day of class, the instructor read a standardized announcement that the Department of Speech had decided to set up specific requirements concerning selection of a term project selection. These requirements were established on a trial basis for almost all Fall term students. The instructor continued by saying that if the procedure proved successful, further attempts would be made to improve the quality of the basic course. The emphasis of the first announcement was that not every student was involved in this trial procedure.

On the first day of the second week, the students received from the experimenter via the instructor a mimeographed letter and two pages of instructions regarding the nature of the four possible term projects. The letter and the pretested instructions appear in Appendix C. The students were also told by their instructor that

they should take any questions regarding the term projects to the person who signed the cover letter. Finally, the instructor reminded the students that they should read the material as soon as possible so that the project could be started.

At the end of the second week, all students completed the pretest attitude measures during the regular class period. Following the procedures used in pretesting the instruments reported earlier in this chapter, students were told that the Course Evaluation Questionnaire would be given throughout the term in order to assess the students' attitudes toward the course. It was further indicated to the students that there were no right or wrong answers and that the results would be kept confidential.

During the fourth week of the term, the experimenter visited the classrooms of those subjects who were in the high and neutral credibility conditions. In one-half of the sections, the experimenter appeared at the beginning of the class period. In the other half, the experimenter appeared from ten to fifteen minutes after the beginning of the class period. Without being named, the experimenter was introduced as a member of the Speech Department who had some tapes that he wanted to play for the class. The experimenter announced that the Department of Speech was attempting to get a collection of taped speeches to be used during ensuing terms. Students were told that no attempt was made to select all good or all bad speeches. Next, the students were told that their opinions concerning the speech were being solicited in order to include students' evaluations with the tape recordings. Finally,

the introduction to the speaker was read and the tape played. After the recording, a short speech evaluation questionnaire was distributed. ~~This questionnaire was used to disguise the true purpose of the~~ experiment. This questionnaire is contained in Appendix D. Following the collection of the questionnaires, the experimenter thanked the class for its cooperation, and he left. This was the only contact that the experimenter had with the subjects. Prior to the actual playing of the tape, the instructors were asked not to discuss the speech in class or with any of the students until the projects were collected.

Sometime after the experimenter left, the instructor distributed the Course Evaluation Questionnaire for the second and last time. The instructors announced to the class that "once again the Department of Speech is asking the student to assess his Speech 200 course." Likewise, instructors of students in the control group distributed the questionnaire on the same day that the other sections heard the speech. Upon completion of the attitude questionnaire, one-half of all the sections was asked to complete the immediate behavior measure. The other half received no such measure, but the students were allowed to begin or continue their work on the project uninterrupted. Instructors indicated to the experimenter any subject who arrived late to class or who was absent from class on the day that the speech was played. Data from these subjects were excluded from the final calculations. Other subjects were lost because they had dropped the course or transferred to a section that was not included in the study. A total of 65 out of

799 subjects was lost for the above reasons.

All projects were collected by the experimenter at the end of the seventh week of the term. Twenty-two subjects were lost because they failed to turn in a project. Instructors indicated that six of these subjects also failed to attend class and failed or withdrew from the course. The other 16 students transferred to a section that was not included in the study. The name of each student and his term project choice were recorded on individual IBM cards for data processing.

In summary of the procedures used for the collection of the data, the following figure helps to capsulize the method of data accumulation.

FIGURE 1

Factorial Design: Number of Subjects in Each Condition

Source	Material	Pre-test	Speech	Post-test	Immediate Behavior	Delayed Behavior
High	134	122	122	122	120	
Ethos	146	132	132	132		131
Neutral	130	118	118	118	116	
Ethos	124	115	115	115		111
	135	124		124	118	
Control	130	123		123		116

Statistical Procedures

One-way analysis of variance was computed on the pretest attitude scores to determine the initial homogeneity of the attitude scores

within the three levels of the design.

The immediate posttest attitude scale scores were subjected to a one-factor analysis of covariance. The initial attitude served as the covariate. ~~The initial credibility treatment variable~~ served as the factor. Separate covariate analyses were computed for the summed generalized attitude scale scores and for the summed specific attitude scale scores. Separate analyses were also computed for males and for females.

To discover the significance of the difference between the mean posttest scale scores (adjusted by covariance), separate t-test ratios were determined. T-tests were computed both for the adjusted general attitude means and for the adjusted specific attitude means.

The behavioral choices of the subjects were correlated (point biserial r) with six different attitude scale scores. They were correlated with the pretest specific attitude scale scores and with the pretest general attitude scale scores. Behavior choices were correlated, also, with the posttest specific attitude scores and with the posttest general attitude scores. Finally, the behavior choices were correlated with the specific and general attitude change scores.

To determine whether the term project of abstracting journal articles had been selected by more than a chance number of subjects, a chi-square analysis was computed. A chi-square analysis was also used to determine the effect of the initial credibility level of

the speaker on the final selection of the term project. A chi-square was used to determine the differential effects of project selection immediately after the speech and after a four-week delay. Finally, a chi-square was used to determine the combined effect of the time and initial credibility of the speaker on the final selection of the project.

The .05 criterion level was applied throughout the analyses of results. However, the actual probability levels are reported regardless of their statistical significance.

CHAPTER III

PRESENTATION AND DISCUSSION OF THE RESULTS

The methods and procedures by which the hypotheses were to be tested were set forth in the previous chapter. This chapter reports the results of the tests of the hypotheses and offers a discussion of those results.

Data on those hypotheses related to attitude change are presented first, followed by the results on the hypotheses related to the behavior responses.

Results: Attitude Change Hypotheses

Hypothesis One: Speakers of high initial credibility produce greater immediate general attitude change in an audience than speakers of neutral initial credibility.⁵

This hypothesis was not confirmed. The results of the one-factor analysis of covariance, using the pretest general attitude as the covariate, failed to produce a significant F ratio. The results of this analysis appear in Table 6. The one-way analysis of variance indicated no significant difference on the pretested general attitudes for the three levels of the design--high ethos, neutral ethos, and the control group. Separate analyses were

⁵In chapter two it was indicated that low credibility could not be confirmed by pretesting. Therefore neutral initial credibility was substituted for low credibility for each of the hypotheses tested.

TABLE 6

Generalized Attitude Analysis of Covariance

Source	df	SS	MS	F
Ethos	2	0.985	0.492	NSD
Error	730	6532.517	8.948	
Total	732	6533.502		

Obtained Mean General Attitude Scores

Source	Pretest Attitude	Adjusted Posttest Attitude
High Ethos (A)	19.748	19.744
Neutral Ethos (B)	19.352	19.663
Control Group (C)	19.194	19.669

Note: The lower the score, the more favorable the attitude.

Hypothesis Tests

H: $A < B$ NSD

H: $B < C$ NSD

computed using the pretested specific attitude as a second covariate. This analysis yielded identical results. Separate analyses for males and females also yielded identical results. As none of these additional analyses produced further insight into the data, they were not reported.

Reliability estimates were obtained on the pretest attitude responses and on the posttest responses to be certain that the attitude questionnaire maintained the high reliability coefficients reported on the pretesting. The corrected split-halves reliability for the pretest general attitude items was .888. The corrected split-halves reliability for the posttest was .925. The corrected split-halves reliability estimate for the pretest total attitude scores was .901. The corrected split-halves reliability for the posttest total scores was .914. The test-retest reliability for the total scores with a two-week delay was .918.

Hypothesis Two: Speakers of high initial credibility produce greater immediate specific attitude change in an audience than speakers of neutral initial credibility.

This hypothesis was confirmed. An F ratio of 29.374 ($p < .001$) was obtained from the analysis of covariance (See Table 7). No significant differences were indicated for the three levels of the design from a one-way analysis of variance on the pretest attitude scores. Separate analyses of covariance for males and females yielded results nearly identical to the total analysis of covariance. Analysis of covariance using the pretest general attitude scores as the covariate failed to produce additional

TABLE 7
Specific Attitude Analysis of Covariance

Source	df	SS	MS	F
Ethos	2	135.679	67.839	29.374*
Error	730	1685.914	2.309	
Total	732	1821.593		

* $p < .001$

Obtained Mean Specific Attitude Scores

Source	Pretest Attitude	Adjusted Posttest
High Ethos (A)	6.559	5.699
Medium Ethos (B)	6.622	6.013
Control Group (C)	6.466	6.718

Note: The lower the score, the more favorable the attitude.

Hypothesis Tests

H: $A < B$ $\bar{D} = .347$ $t = 2.39, p < .01$ (one-tailed)

H: $B < C$ $\bar{D} = .624$ $t = 4.30, p < .01$ (two-tailed)

information and was not included. A t value of 2.39 ($p < .01$) was obtained between the means of the high and neutral credibility groups. A one-tailed test of significance was used because it was predicted that the high credibility speaker would produce more change than the neutral credibility speaker. A difference of 4.30 ($p < .01$) was obtained for the t value between the means of the neutral credibility and the control groups. A two-tailed test was appropriate here, because no prediction was made.

The corrected split-halves reliability estimate for the pretest specific attitude items was .857. The reliability for the posttest items was .916. The test-retest reliability with a two-week delay was .733.

Factor analyses and varimax rotation analyses were computed to be certain that the entire attitude scale remained consistent when used in the main study. Four identifiable factors emerged from these analyses of the combined total responses from the pretest and the posttest questionnaires. (See Table 8.) The first factor which accounted for 21.78% of the variance could be described as the "Course Content" factor. This factor was identical with the first factor obtained from the pretest of the attitude scale as described in the second chapter. The second factor which accounted for 12.86% of the variance contained only those eight items related to the four specific term projects. Unlike the results obtained from the pretest of the attitude instrument, the fourteen items related to written assignments did not have high loadings on one factor. In fact, the six general attitude items loaded on the fourth

TABLE 8

**Factor Loadings of General and Specific
Attitude Items: Final Study**

Source	Factor			
	I	II	III	IV
General Attitude				
3	04	-20	02	77
6	21	-50	-04	47
12	04	-27	03	82
18	-19	-48	02	50
21	07	-30	03	83
28	00	-16	01	75
Specific Attitude				
8	07	-63	07	03
14	11	-66	03	15
20	04	-59	07	32
25	06	-67	08	07
27	05	-59	04	34
32	09	-67	-03	18
35	14	-70	00	17
40	08	-69	00	19

factor which accounted for 4.56% of the variance. The third factor, which accounted for 5.29% of the variance, could be called the "Instructor" factor. The second and fourth factors were both clean. That is, only the eight specific items had high loadings on the second factor. Likewise, only the six general items had high loadings on the fourth factor. This separation of the general attitudes and the specific attitudes seemed to indicate that these two types of attitude were psychologically independent. Thus further confirmation for the separation of the general and specific attitude items was obtained from this post hoc factor analysis. The fact that the pretest factor analysis did not show this separation may be attributed to the small sample used ($n = 70$). The sample of the main study was 1768. Like the results obtained in pretesting the attitude questionnaire, the item-total correlations were all above the minimum of .5. These item-total correlations were computed on each general attitude with the total of the general items. Similar correlations were computed for the specific attitude items.

In summary of the first two hypotheses, attitude change was achieved on only the specific attitude dimension of the reliable Course Evaluation Questionnaire as a result of a persuasive communication by a speaker of high initial credibility and a speaker of neutral initial credibility.

Results: Behavior Hypotheses

Hypothesis Three: Speakers of high initial credibility produce greater immediate, overt behavior response in an audience than

speakers of neutral initial credibility.

This hypothesis was confirmed. In order to determine the over-all effectiveness of the independent variable (credibility) in producing the desired behavior, chi-square was computed. Collapsing the factor of the immediate and the delayed indication of time for the selection of the project, the chi-square was 45.14 ($p < .001$). (See Table 9.) This analysis indicated a clear interaction between the treatment effect and the selection of the term project. The abstracting project was selected by 126 subjects in the high credibility treatment; by 80 subjects in the neutral credibility treatment; and by 49 in the control group. Separate chi-square analyses were computed at each treatment level to determine whether the frequencies with which abstracting project was selected could be attributable to chance. The expected frequencies of 25% for the abstracting project and 75% for the other projects were used as conservative estimates of the expected frequencies. If the control group frequencies of selection were used for the expected frequencies, (See Table 9) the percentages would have been 20% and 80% respectively.

The chi-square for the immediate behavior analysis was 24.22, $p < .001$. (See Table 10.) This analysis indicated an interaction of the levels of credibility and the selection of the term projects when an immediate choice of behavior was requested. A separate chi-square for the high and neutral credibility groups was 2.97, $p < .05$ (one-tailed). This analysis indicated that there was an interaction between the credibility level and the selection of the term project. A greater proportion of subjects chose to abstract