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An Experimental Study of the Effect of Artistic and Non-Artistic Ethos Upon the Immediate and Delayed Recall of Information Conveyed in a Speech.

Thomas Roy King
Louisiana State University and Agricultural & Mechanical College

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AN EXPERIMENTAL STUDY OF THE EFFECT OF ARTISTIC AND NON-ARTISTIC ETHOS UPON THE IMMEDIATE AND DELAYED RECALL OF INFORMATION CONVEYED IN A SPEECH.

Louisiana State University, Ph.D., 1964
Speech-Theater

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AN EXPERIMENTAL STUDY OF THE EFFECT OF ARTISTIC
AND NON-ARTISTIC ETHOS UPON THE IMMEDIATE
AND DELAYED RECALL OF INFORMATION
CONVEYED IN A SPEECH

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
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in partial fulfillment of the
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Doctor of Philosophy

in

The Department of Speech

by
Thomas Roy King
M.A., Florida State University, 1958
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ABSTRACT

This investigation tested the effect of artistic and non-artistic ethical appeal, or ethos, on the immediate and delayed recall of information in an informative speech. Ethos is the audience's image of the speaker resulting from both the main effects and interaction of their knowledge of the speaker prior to the speech and of any additional insights into his character that result from the speech. Non-artistic ethos is the image of the speaker held by the audience prior to the beginning of the speech. Artistic ethos is the image resulting from the arrangement, invention, style, and delivery of the speaker. For measurement purposes ethos in this dissertation was defined as the characteristics measured by the evaluative and dynamism scales on the ethos semantic differential by Andersen.

The experimental design was a 2 X 2 X 2 analysis of variance design with the three independent variables being the high and low levels of non-artistic ethos, the high and low levels of artistic ethos, and the immediate and delayed periods of recall. The experimenter developed the two levels of non-artistic ethos by preparing two recorded speeches of introduction. A pilot study determined that a
significant difference existed between the high and low non-artistic ethos introductions on both the evaluative and dynamism scales of the ethos semantic differential. The experimenter developed the two levels of artistic ethos by writing two versions of an informative speech using additions, deletions, and substitutions implying high ethos in one version and low ethos in the other. A person whose voice did not reveal any stereotypes of age and occupation recorded both versions of the speech. A pilot study determined that a significant difference existed between the high and low artistic ethos versions of the speech. The experimenter controlled the two periods of recall by testing half of the subjects immediately after they heard the speech and by testing the other half two weeks later. The dependent variable for the study was an informational test constructed by using the cloze procedure technique.

The experimenter selected the subjects on the basis of a matched group design based on the local percentile ranks of the subjects on the American Council of Education Psychological Examination. The eight treatment groups, each containing twenty subjects, were randomly assigned to the various treatment cells of the statistical design. The control group consisted of sixty-five other students who took the cloze procedure test without hearing the speech.

Within the limitations of this study and the method used, the following major conclusions seem justified: (1)
Changes from high to low non-artistic ethical appeal in the form of varied speaker introductions do not significantly affect the recall of a recorded informative speech. (2) Changes from high to low artistic ethical appeal in the form of the absence or presence of statements within a speech implying high or low ethical appeal do not affect the recall of a recorded informative speech. (3) No significant difference exists between the immediate and delayed recall of subjects hearing a recorded speech. (4) The interaction of the levels of non-artistic ethos with the levels of artistic ethos modified the terminal ethos of the speaker on the evaluative scale, but not on the dynamism scale. (5) The interaction of high and low non-artistic ethos and high and low artistic ethos does not significantly affect the recall of a recorded informative speech.
I. INTRODUCTION

Importance of the Study

Like so many other concepts used in modern rhetoric, ethos or ethical appeal received its first specific statement at the hands of Aristotle. In the Rhetoric, Aristotle recognized that three means of persuasion are available to the orator. He said:

Of the means of persuasion supplied by the speech itself there are three kinds. The first kind reside in the character (ethos) of the speaker; the second consist in producing a certain attitude in the hearer; the third appertain to the argument proper, in so far as it actually or seemingly demonstrates.1

Of these three, Aristotle claimed ethos "is the most potent of all the means of persuasion."2 Aristotle listed the constituents of ethos as intelligence, good character, and good will toward the audience.3 In modern terms, ethos may be considered as the appeal which comes from the speaker himself. The listeners may be more inclined or less inclined to listen to a speaker or believe what he says because of his prestige or credibility. Since Aristotle and later writers were primarily concerned with persuasive speaking, they

2 Ibid., p. 9.
3 Ibid., p. 91.
usually related ethos only to persuasion. It seems reasonable to assume that if ethos is as important as has been asserted, the prestige of the speaker should affect the information learned and remembered from an informative speech. The prominence of ethical appeal in classical theory justifies further study in this area. The present study will investigate the effects of the ethical appeal of the speaker on the immediate and delayed recall of an informative speech.

Another factor making a study of the relationship between ethos and informative speaking significant is the lack of experimental investigation in this area at the present time. In a summary and bibliography of research related to informative speaking, Charles R. Petrie, Jr., asserts that in comparison with persuasive speaking, informative speaking has been a neglected field for research. He not only points out this lack of research, but he reveals the inconsistencies in the results of the available studies. 4 Petrie concludes his summary with the observation:

Reading experimental literature about informative speaking is disappointing and sometimes frustrating. Such studies are so limited in number and the results are so inconclusive and inconsistent that few, if any, conclusions can be drawn. Moreover, since much of the research has serious theoretical and/or methodological weaknesses, many of the generalizations which appear to be valid must be advanced only with reservations. Likewise . . .

conclusions based upon experimental studies of informative and persuasive writings, of persuasive speaking, of verbal learning, and of other related areas rest upon analogies which in turn depend upon unexamined assumptions. . . . Surely, informative speaking deserves a greater amount of study that it has received. Many aspects have not yet been studied experimentally, and those which have been examined require additional investigation.5

In their recent summary of the experimental research concerning ethos, Andersen and Clevenger agree that there is not enough research relating informative speaking to ethical appeal. They point out, "There is not enough evidence to suggest that the amount of information gained from exposure to a message is related to the ethos of the source - at least this lack of relationship seems to be true of college populations."6 Among their suggestions for needed research in this area, Andersen and Clevenger propose that the dimensions of ethos should be further explored through the use of multivariate analysis of different speech situations, that ethical appeal should be explored in studies where the variables were not confounded with persuasiveness, and that rhetorical theory would profit from further studies of the interaction of artistic and non-artistic ethos.7

The present study investigates the effect of the

5Ibid., p. 85.
7Ibid., p. 78.
ethos of the speaker on the immediate and delayed recall of an informative speech and should provide insight into both ethical appeal and informative speaking. This study should supply some of the additional research desired by Andersen and Clevenger since it will include a multivariate analysis of artistic and non-artistic ethos, will provide additional evidence on the relationship between ethos and informative speaking, and will not confound dependent variables with persuasiveness. As a study related directly with oral communication of information, this experiment should add to the available knowledge about the effects of ethos on informative speaking. The present study should provide answers to some of the questions involved in both of these areas and help in the further development of rhetorical theory.

Statement of the Problem

The purpose of this study is to investigate the effect of artistic and non-artistic ethos as main effects and as interactions with the immediate and delayed recall of information conveyed in a speech. Non-artistic ethos is the image of the speaker prior to the speech and artistic ethos is the image of the speaker resulting from the speech.

In this investigation the experimenter attempts to answer the following primary questions:

1. Do high and low non-artistic ethical appeals in
the form of varied speaker introductions significantly affect the immediate recall and/or delayed recall of a recorded informative speech?

2. Do high and low artistic ethical appeals in the form of the absence or presence of statements implying high or low ethos within the speech significantly affect the immediate recall and/or delayed recall of a recorded informative speech?

3. Is there a significant difference between the immediate recall and delayed recall of subjects hearing a recorded informative speech?

4. Is there an interaction between the effects of non-artistic ethos and artistic ethos as measured by the ethos semantic differential?

5. Does the interaction of non-artistic ethical appeal and artistic ethical appeal significantly affect the immediate recall and/or delayed recall of a recorded informative speech?

In addition, the study provides further insight into the following secondary questions:

1. Does hearing a recorded informative speech significantly increase the information of the experimental subjects over a control group which has not heard the speech? If so, does hearing a recorded informative speech significantly increase the information of the experimental
subjects over the control subjects for both the immediate recall and delayed recall?

2. Is there a significant correlation between intelligence and immediate recall and/or delayed recall for a recorded informative speech?

3. Can the usual experimental technique of assigning a recorded speech to speakers of supposedly different ethos actually produce significantly different non-artistic ethical appeals as measured by the ethos semantic differential?

4. Do high and low artistic ethical appeals in the form of the absence or presence of statements implying high or low ethos within the speech itself actually produce significantly different artistic ethical appeals, as measured by the ethos semantic differential?

**Definition of Terms**

In the present study, ethos is the audience's image of the speaker resulting from both the main effects and the interaction of their knowledge of the speaker prior to the speech and of any additional insights into the speaker's character that result from the speech. Operationally speaking, ethos is the composite of the audience's answers to all of the possible questions about the speaker. Since the image of a speaker can change, one should think of a speaker's ethos in terms of a specific time with a particular
audience under certain circumstances. For measurement purposes, ethos in this dissertation is defined as the characteristics measured by the evaluative and dynamism scales on the ethos semantic differential by Andersen. Chapter III, the section, "Measuring Instruments--The Ethos Semantic Differential," discusses at length this measuring instrument. Any differences or changes in ethos will be discussed in terms of these scale values.

Early in the Rhetoric, Aristotle maintained that rhetorical proofs are of two kinds, artistic and non-artistic. According to Aristotle, artistic proof refers to those means of persuasion which are intrinsic to the art of rhetoric and which the orator furnished through the application of his art. Aristotle believed the speaker does not supply non-artistic proof through the use of his art, since non-artistic proof existed beforehand and only has to be used by the speaker. In light of this distinction, Aristotle confined his consideration of ethos to artistic proof. He discussed only the methods which the speaker uses throughout a speech to establish his intelligence, character, and good will. He did not discuss the effect of the audience's prior conception of the speaker on the speaker's

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establishment of credibility. Thonnsen and Baird feel it is, however, an artificial restriction, since the attitude of the audience toward the speaker - based upon previous knowledge of the latter's activities and reputation - cannot accurately be separated from the reaction the speaker induces through the medium of the speech.

Two versions of ethos may then be distinguished. Non-artistic ethos is the image of the speaker held by the audience prior to the beginning of the speech. In this study, speeches of introduction establish the high and low levels of non-artistic ethos. On the other hand, artistic ethos is the image resulting from any elements of the speaking situation, i.e., arrangement, invention, style, and delivery. In the present experimental situation, changes within a speech giving different images of the intelligence, character, and good will of the speaker establish the high and low levels of artistic ethos.

The non-artistic ethos of a speaker is his ethical appeal prior to the delivery of the speech. One can measure the artistic ethos of the speaker after he has spoken if the audience has no prior knowledge of the speaker. This theoretical artistic ethos probably exists only in an experimental situation where the experimenter controls the audience's knowledge of the speaker.

11 Ibid., p. 385.
The terminal ethos of the speaker is defined as a measure of the speaker's ethos after his speech. The speaker's terminal ethos would be the interaction of his non-artistic ethos with his artistic ethos.

**Chapter Outline of Dissertation**

Chapter Two presents a review of the previous experimental research directly related to the effect of the ethos of the speaker on the learning of information. A comparison and summary of these studies and their direct relationship to the present study concludes the chapter.

Chapter Three begins with a description of the selection of the voice used to record the speeches of introduction and the voice used to record the main speeches of the experiment. A discussion of the measuring instruments used in the experiment, the ethos semantic differential and the cloze procedure technique, follows. Chapter Three includes a description of the development of the independent variables in the form of two speeches of introduction producing high and low levels of non-artistic ethos, two versions of an informative speech revealing high and low levels of artistic ethos, and two levels of recall. Finally, Chapter Three discusses the experiment itself by describing the subjects, procedure, and results of the study.

Chapter Four, the final chapter, contains a summary of the entire study and a discussion of the conclusions.
which may be drawn from this dissertation.
II. REVIEW OF PREVIOUS RESEARCH

This chapter reviews the experimental research directly concerned with the effect of the ethos of the speaker upon the learning of information. This review includes studies pertaining to written communication as well as oral communication. Most of the studies relating ethos to acquired information involve non-artistic ethos rather than artistic ethos. As a result, this chapter considers principally studies concerned with non-artistic ethos. These reviews of the pertinent studies are considered in chronological order. A comparison and summary of these studies and their direct relationship to the present study concludes the chapter. Andersen and Clevenger's recently published review of the more general experimental research in ethos\(^1\) and Petrie's summary of the past research in informative speaking\(^2\) provide a broader survey of ethical appeal and informative speaking.

In the earliest experiment concerning ethos and


informative speaking, Haiman measured the effect of artistic ethos upon the comprehension of technical material read to college students who were motivated to listen. Haiman divided his study into three phases. In each phase, a trained speaker read a story to one audience while an untrained speaker read the same story to another audience. The speakers' training in delivery determined the levels of artistic ethos in this study. After the story, Haiman tested the comprehension of the subjects with a 73-item multiple choice recognition test. He used a nine-point graphic rating scale to record the auditors' reaction to the speaker's likeableness as a person and to his speaking ability. The one phase of the study in which Haiman attempted to vary the non-artistic ethos of the speaker contained many uncontrolled variables. Haiman did not control the audience's previous knowledge of the speaker, since the trained speaker spoke to a class of strangers while the untrained speaker spoke to his own classmates who knew him personally. Furthermore, the introduction of the trained speaker increased his prestige while no introduction preceded the untrained speaker. Under these circumstances, Haiman found no significant difference between the ratings of the speakers on either speaking

ability or personality. The main phase of the experiment did not involve non-artistic ethos because the audiences did not know the speakers and Haiman did not introduce them. Since the speakers were reading the same story, delivery alone determined their artistic ethos. The audience rated the trained speaker significantly better than the untrained speaker both as a speaker and as a person. The difference between the means on the comprehension tests for the two groups approached significance at the .05 level. Haiman predicted that the use of more precise procedures would yield statistically significant results. In this study of only one aspect of artistic ethos, i.e., delivery, the difference between the mean scores of the auditors on an immediate retention test approached significance.

Nichols appears to have conducted the only other study primarily concerned with the relationship between the comprehension of orally presented material and the audience's attitude toward the speaker. In this detailed study of listening, six college teachers prepared and delivered lectures on different topics to 200 college students. The subjects took immediate recognition tests of 20 multiple choice questions after each lecture and supplied information on questionnaires, personality inventories, and intelligence tests. Among his many conclusions, Nichols

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found evidence to suggest, but not to establish, that on an immediate test the admiration for the speaker influenced the listening comprehension of the subjects. Since Nichols was not principally concerned with the effects of ethos, he made no attempt to control this independent variable. The use of artistic ethos was dependent entirely on the discretion of each speaker as he prepared and delivered his own speech. Since many of the students may have known the speakers in advance, there may have been an interaction between the artistic and non-artistic ethos of the speakers.

Although the research concerning the effects of non-artistic ethos on the information gained from a communication is relatively extensive, in all cases the test for information gained was secondary to the other part of the study. In the earliest of these investigations, Hovland and Weiss made a study of opinion change in which they controlled the alleged sources of information. They also were interested in examining the effect of delayed testing on opinions derived from high and low credibility sources. Hovland and Weiss determined the credibility of the sources by giving a questionnaire to their subjects five days before the main study. The subjects rated the sources used in the main study along with many other possible sources on a 5-point

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rating scale. The same subjects were used in both this preliminary rating and in the main experiment. Hovland and Weiss prepared written articles, pro and con, on four topics and assigned these articles to high and low credibility sources. The experimenters presented identical written communications to two groups of college students, but they ascribed the communications to sources with different degrees of trustworthiness. Immediately after reading the four articles in a booklet, the subjects filled out a questionnaire about their reactions to the articles. At the end of the questionnaire, Hovland and Weiss administered 16 multiple-choice questions, four on each topic, to test the information learned from the articles. They gave the same questions to the same subjects four weeks later to measure retention. Hovland and Weiss gave no information concerning the reliability or validity of this test. On both the immediate and delayed test, Hovland and Weiss found no significant difference in the amount of factual information which the subjects learned when the material was attributed to a high credibility source as compared to the amount learned when the same material was attributed to a low credibility source.

Hovland and Mandell[^6] investigated the effects of

the communicator stating or failing to state the conclusions he wanted drawn from a communication and the effects of the audience thinking that his motives were sincere or suspicious. Their communications, in the form of radio programs, contained identical information but different opening and closing portions. One introduction of the program evoked suspicion of the communicator's motives and the other elicited belief in his impartiality. One ending of the program contained an explicit statement of the conclusions the communicator desired the audience to accept while the other ending did not draw any specific conclusions. The four possible combinations of the two introductions and the two conclusions were presented to different groups of college students. Tests given before and after the radio program determined the effect of the program on the subjects' opinions. Incidental interest in the effect of suspicion of the communicator on the amount of factual information learned from the communication led to the inclusion of a twelve item fact quiz in the questionnaire used immediately after the program. The validity or reliability of this quiz was not reported. Hovland and Mandell found no evidence to suggest that the suspicion-arousing introduction affected the amount of information learned from the program. The questionnaire contained one multiple choice question for measuring the audience's opinion of the motives of the speaker. The effect of the
absence or presence of an explicit conclusion on the amount of information learned was not reported. The suspicion arousing variable in this study may be a factor of non-artistic ethos. This introduction would affect the audience's conception of the character and good will of the speaker. The presence or absence of definite conclusions on the part of the speaker may have affected the artistic ethos of the speaker, but this possibility was not considered in the experiment and the interaction of the two effects was not reported.

Working with Kelman, Hovland attempted to discover whether the negative effect of elapsed time on opinion change could be overcome by reminding the audience of the communicator at the time of the delayed test. Using a radio interview format, the experimenters tried to establish a positive, negative, or neutral prestige level for the communicator in three different introductions but they used identical content for the rest of the program. Differences in voice and style of delivery of the informative speech were in keeping with the personalities suggested by the three introductions. Kelman and Hovland divided the subjects, advanced high school students, into three groups and

presented one of the introductions followed by the speech to each group. They tested the subjects for opinion change immediately after hearing the program and three weeks later. At the time of the delayed test, half of the subjects in each group heard again the first part of the interview in order to remind them of the character of the communicator. Kelman and Hovland measured the audience's reaction to the prestige of the speaker with multiple choice questions. They did not include any objective test of information in the questionnaire, but they did insert one item asking for free recall of the content of the communication. Kelman and Hovland scored the answers to this question on the basis of the number of points recalled by the subject. They did not report the validity and reliability of such a test. Kelman and Hovland found that listeners recalled more of the factual material when presented by a neutral communicator and recalled more on the delayed test when not reminded of the communicator than when reminded. The differences between the neutral and negative communicators were both significant beyond the .02 level on a two-tailed test. The adverse effect of being reminded of the communicator was significant for the negative communicator at the .05 level. When viewed in terms of artistic and non-artistic ethos, this study shows a definite lack of adequate control of these variables. If one thinks of the introductory part of the interview as being prior to the speech, as Kelman and
Hovland appear to have thought, then it would be non-artistic ethos. On the other hand, if one considers the introduction as part of the speech, then it is artistic proof. In any case, Kelman and Hovland's use of different voices and styles of delivery probably affected the artistic proof of the speaker and thus confounded the results of the study. Their attempting to establish a neutral prestige speaker by not providing the subjects with any information about him adds to the complications. This study and others show that merely selecting a person to appear on the radio or to be in the experiment adds to the prestige of the speaker. From this study it would be difficult to determine the effect of the artistic and non-artistic ethos of the speaker on the acquisition and retention of information. Even with the crude test of recall used in this study, there appears to be some relationship between ethos and the immediate and delayed recall of the audience.

In his dissertation, Paulson\(^8\) tried to determine whether or not a college audience registered a greater shift of opinion or higher retention when a speaker gave both sides of a controversial issue than when he gave only one side. Paulson also studied the effect of listening to

a speaker with high prestige as opposed to a speaker with low prestige. He investigated the relationship between the results and the sex, initial attitudes, intelligence, or amount of education of the members of the audience. He selected a speaker whose voice could not be identified by age and had him record two versions of a speech. The first version contained only the arguments in favor of allowing eighteen year olds to vote, while the second version included the recognition and statement of opposing arguments. The speech with both sides presented did not give equal weight or equal time to the opposing arguments, but simply stated the opposing arguments in an attempt to get better reception for the advocated proposition from the antagonistic members of the audience. Paulson told half of the subjects who heard each version of the speech that the speaker was a professor of political science and the other half that the speaker was a sophomore student. Paulson assumed there was a difference in prestige level of these two "speakers." Immediately after presenting the speech, Paulson tested the subjects for retention of information with a 50-item multiple choice test. The test had a split-half correlation coefficient of .548 and by means of the Spearman-Brown Prophesy Formula the coefficient for the whole test became .71. Since the two halves did not meet the Spearman-Brown Prophesy Formula assumption of equal means and equal standard deviations, this coefficient does
not appropriately indicate the consistency of the retention test. Among his findings, Paulson reported that the retention scores for men and women who heard the "student" and those who heard the "professor" were not significantly different, but that the retention of those who heard the "two-sides" presentation was significantly better than those who heard only one side. Paulson did not determine whether the difference between the one-sided and two-sided presentation had affected the artistic ethos of the speaker. He did not determine the results of the interaction between the two methods of presentation and the two levels of prestige (non-artistic ethos) on the retention of the subjects.

The primary purpose of Highlander's dissertation was the evaluation of the Wisconsin Sequential-Sampling Audience Analyzer which recorded observers' reactions to a program stimulus. Secondarily, Highlander correlated the audience's reactions with information gained from listening to public service radio talks varying in delivery skills and in authority-prestige. He had two speakers differing in speech training and ability record two short speeches and a dramatized narration. An announcer recorded alternate speaker introductions with high and low prestige. Highlander

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did not measure the difference in the prestige levels of these introductions. He prepared a 54-item true-false information test that had a split-half correlation coefficient of .66. Using the Spearman-Brown Prophesy Formula, the coefficient for the test was .7951. Highlander gave the same test with the items arranged in different order to the subjects, college students, both before and immediately after hearing the speeches. Highlander found no significant difference between the retention of the groups hearing the speaker with good delivery and those hearing the speaker with poor delivery. In this study, the differences in delivery would be one factor affecting the artistic ethos of the speaker. Highlander found that the non-authority speaker produced informational effects equal to those produced by the authority speaker. He suggested that this finding could be influenced by the fact that mass media tends to confer prestige on an individual just because he appeared before the public. Since the audience analyzer required conscious manipulation by the auditors during the speeches, Highlander felt its use confounded the informational effects tested in this study.

In his thesis, Rea studied the effect of source credibility and order of presentation on persuasion. Rea

achieved variation in the order of presentation by giving the arguments in favor of the proposition first to one group and presenting the arguments opposed to the proposition first to the other group. Rea varied the high and low levels of credibility by having subjects rate the credibility of eight prominent people. He selected the person with the highest and the person with the lowest ratings as the hypothetical source of the speech. He then prepared introductory speeches to strengthen these previously measured ratings. Rea did not measure the terminal ethos of the speakers. Immediately after the presentation of the recorded speech, Rea administered a twenty-one question multiple choice test to the students who served as subjects. He did not report the reliability and validity of this test. Since Rea was primarily concerned with discovering whether learning factors were determinants of the shifts in opinion, he did not report specifically whether the non-artistic ethos of the speakers affected the information gained from the speech. An examination of his data and results indicates that there would not be any significant difference in learning from the two levels of non-artistic ethos.

These studies which have been reviewed do not attempt to answer the question of the effect of artistic and non-artistic ethos on informative speaking. None of these
studies are directly concerned with the effect of non-artistic and artistic ethos, both as main effects and as interactions, upon the immediate and delayed recall of information from an oral source. The following summary will establish the inter-relationships between the experimental techniques and results of these studies as they bear directly on the present investigation.

All of the above studies were based on the assumption that ethos is a fixed value throughout the communication process, rather than ethos changing and being changed as the delivery, style, organization, or invention displayed in the speech modifies the audience's image of the speaker. This fixed concept of ethos is apparent in the lack of consideration of the possible effect of other experimental variables on the prestige levels which the experimenters wished to establish. All of the writers except Haiman primarily considered non-artistic ethical appeal, but these included independent variables which could have affected the artistic ethos of the speaker. Differences in delivery may have influenced the terminal ethos of the speakers in the reports by Nichols, Kelman and Hovland, and Highlander. Differences in organization, style, and invention may have also affected the ethical appeal of the speakers in Nichols' study since each of the six speakers prepared his own speech. Inventional and organizational factors may have influenced the artistic
ethical appeal of the speakers in the study by Hovland and Mandell when they either drew or failed to draw specific conclusions from their arguments, in the study by Paulson when he had the speaker present arguments on either one side or both sides of a proposition, and in the study by Rea when he varied the order of presentation of the arguments for and against the proposition. Only Hovland and Weiss apparently have not confounded their study of non-artistic ethical appeal with possible artistic ethical appeal factors. None of the studies report any measure or tests of the possible interaction effects of the two experimental variables in their study. Since these studies appear to have been based on the assumption that the ethical appeal of a speaker is a fixed quantity and is not changed by other varied factors in the speaking situation, the influence of ethical appeal on the information gained from the speech cannot be determined with certainty.

The assumption that ethos is fixed is also evident in the lack of adequate attempts to measure the ethos level of the speaker. Haiman made the most adequate measurement of ethos although he was mainly concerned with delivery, only one factor of artistic ethos. Immediately after the speech in his experiment, Haiman used a nine-point linear rating scale to obtain a uni-dimensional measure of the ethos of the speakers. Hovland and Weiss used a similar five-point scale but measured the prestige of their various
sources five days before the subjects received the communica-
tion. Rea also had his subjects rate the ethical appeal of his alleged speakers in advance of the speech and did not measure it again after the speech. The only other attempts to measure the prestige of the communicator was the study by Hovland and Mandell and the study by Kelman and Hovland. Both of these studies used one multiple choice question after the communication to obtain the audience's reactions. Paulson and Highlander prepared introductory speeches to establish high and low non-artistic ethos levels and assumed that there was a significant difference between the two levels without testing them.

These studies were concerned with only the effect of the ethical appeal level of the speaker on the immediate retention of information by the listeners. Hovland and Weiss, in addition to this immediate measure, tested the information retained by the subjects four weeks after the exposure to the stimulus. Kelman and Hovland similarly tested three weeks after the subjects heard the communica-
tion. In both of these studies, the same subjects took the same short test in both the immediate and delayed tests. This procedure confounded the results of the delayed test since one cannot be certain how much of the score made on this delayed test was the result of learning from the communica-
tion and how much was the result of learning from the prior administration of the test.
With the exception of the study by Kelman and Hovland, the informational tests used in the studies were of the multiple choice or true-false varieties. These tests measure the subjects' ability to recognize information found in the speech. Kelman and Hovland had the only test which asked for recall of information rather than recognition. Their test consisted of only one question which asked the subjects for free recall of information from the communication and was scored by counting the number of items remembered by the subjects. The present study will test recall but with a more sophisticated measuring instrument.

Nichols, Paulson, and Highlander were the only experimenters to report the validity and reliability of the informational tests. One cannot determine the adequacy of the measuring instruments in the other studies.

These results of these previous investigations present an inconsistent picture of the relationship, or the lack of relationship, between the ethical appeal of the speaker and the information obtained by the audience. Haiman and Nichols obtained results which approached a significant relationship between possible artistic ethos and the immediate learning of information. Paulson found a significant difference in the retention of those subjects who heard a two-sided presentation over those who heard a one-sided presentation. If this difference in coverage of
both sides affected the artistic ethical appeal, then this result might indicate a relationship between artistic proof and immediate retention of information. Kelman and Hovland found that subjects who heard a speaker with neutral prestige did significantly better than those who heard the speakers with negative or positive prestige. Their findings might either be related to non-artistic ethos or to artistic ethos, depending upon the interpretation of the reader, but again there appears to be some relationship between ethos and retention of information. The other four investigations reported opposing results. Hovland and Weiss, Hovland and Mandell, Highlander, and Rea report no significant relationship between ethical appeal and the retention of information. In light of these inconsistencies in results, one can conclude that further research is needed in this area.

Andersen conducted a thorough investigation of the effects and interaction of artistic and non-artistic ethos in his study of their effects on persuasion. Andersen developed new semantic differential scales constituting an empirically derived, multivariate measure of ethos (described in Chapter III, Measuring Instruments). He found that the interaction between artistic and non-artistic

ethos was significant in determining the terminal ethos of the speaker and that the effects of combining artistic and non-artistic ethos cannot be predicted by treating them as independent and additive. The present study will also investigate artistic and non-artistic ethos using material on a different subject designed primarily to inform rather than to persuade. This study should determine whether his findings are confirmed under different conditions.
III. PROCEDURE

This chapter will describe (1) the selection of the voices recording the speeches, (2) the theoretical and practical bases of the measuring instruments used in the study, (3) the development of the independent variables, and (4) the methods used and the results obtained in the major part of the experiment.

Selection of Voice Used in Recording

In all but one of the previous studies on ethos examined by this writer, the experimenters have arbitrarily selected the person who was to deliver the speech in the study. These speakers were usually graduate students or advanced undergraduates majoring in speech. Often experience in radio announcing and broadcasting was the determining factor in the selection of the speakers. This subjective method of selecting the voices used in ethos studies ignores the fact that auditors make judgments about a speaker from his voice and this, in turn, affects the terminal ethos of the speaker. Andersen and Clevenger point out, "Such noncontent stimuli as dress, voice, and manner apparently affect the attitude of the audience"
toward the speaker."¹

Recognizing this complication, Paulson selected the voice used to record his experimental speeches more carefully than the other examiners. He recorded several voices reading the same selection and had subjects decide whether they thought the speaker was nearer twenty or nearer forty years of age. The speaker whose age could not be identified recorded the speeches used in the study.² Paulson failed to consider that voices might have other identifiable characteristics.

In experiments on the judgment of personality qualities from voice over radio and public address systems, Allport and Cantril found that audiences may construct relatively complete assessments of a speaker's personality on the basis of his voice. They also ascertained that although personality, physical characteristics, and occupation were likely to be perceived correctly, consistency of response, whether right or wrong, was a stronger tendency than accuracy of judgment.³ Concerning the judgment of occupations, they found, "It is evident that the auditors have decided opinions concerning the kinds of voices which

¹Andersen and Clevenger, op. cit., p. 78.
²Paulson, op. cit.
are typical of the various professions."4

Fay and Middleton corroborated this finding in a study designed to discover whether people listening to a radio or public address system can identify the occupation of the speakers. Among other findings, they discovered, "Certain voices are stereotypes; they definitely impress a rather large percentage of listeners as being the voices of persons who could be classified in a particular occupational category. Other voices are not stereotypes; there is little consistency in judging them."5

Since auditors tend to make consistent judgments about the personality, physical characteristics, and occupations of some people from listening to their voices, the author attempted to select a voice to participate in the experiment which did not have an occupational stereotype and which could not be identified by age.

Method
Subjects: The subjects for this part of the study were 47 students taking basic speech courses at Louisiana State University. Twenty-five males and 22 females were in this group.

4Ibid., p. 45.

Procedure: The experimenter recorded on tape the selection, "Arthur, the Young Rat," a neutral passage designed to give all the sounds in the English language. He recorded the passage first himself so the subjects could become familiar with the material before hearing any of the experimental voices. Then six advanced students and one faculty member in the Department of Speech at Louisiana State University recorded the same selection on the tape. Two of these students were currently employed as announcers on local radio stations.

The experimenter played the tape for the subjects in their own classroom during a regular class period. He read instructions (see the Appendix) explaining that the study would help determine how much information about a person could be guessed by listening to his voice alone. The experimenter gave each subject a sheet providing space for the estimates of age and occupation for each of the voices (see the Appendix). He told the subjects that the first voice was his own and that all of the subsequent voices would read the same passage. He instructed them to estimate the age and occupation for each voice. As he played the recordings, the experimenter identified each voice by number to make sure that the subjects knew which

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Results and Discussion

Table I presents the means, range, and variance for each of the voices. Inspection of this table reveals that voice F has by far the largest variance, thus showing that it is the hardest to identify by age. This voice has a range of estimates from 18 years to 50 years which would easily cover the ages of the hypothetical "student" and "professor" described as delivering the speech in the main experiment. Another way of determining whether this voice would be possible for both of the hypothetical speakers utilizes the means and standard deviation. Since this voice has a mean age estimate of 31.3 years and a standard deviation of 9.8 years, about two-thirds of the subjects estimated the age of voice F between 21.5 years and 41.1 years. This is another indication that this voice is possible for both hypothetical speakers.

TABLE I.—Means, ranges, and variances of the estimations of age for each of the seven voices (N = 47)

<table>
<thead>
<tr>
<th>Voices</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>21.87</td>
<td>28.81</td>
<td>40.87</td>
<td>25.04</td>
<td>30.57</td>
<td>31.30</td>
<td>25.13</td>
</tr>
<tr>
<td>Variance</td>
<td>19.55</td>
<td>40.55</td>
<td>50.15</td>
<td>19.78</td>
<td>29.99</td>
<td>96.04</td>
<td>21.68</td>
</tr>
</tbody>
</table>
TABLE II.--Summary of the estimates of occupation for each of the seven voices (N = 47)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>34</td>
<td>8</td>
<td>1</td>
<td>19</td>
<td>6</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Teacher</td>
<td>6</td>
<td>10</td>
<td>26</td>
<td>9</td>
<td>1</td>
<td>8</td>
<td>5</td>
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<td>Fisherman</td>
<td>1</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salesman</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Office worker</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Businessman</td>
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<td>4</td>
<td>1</td>
<td></td>
<td>1</td>
<td>5</td>
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<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
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<td>Mechanic</td>
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<td></td>
<td>1</td>
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<td>Lawyer</td>
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<td>1</td>
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<td>2</td>
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<td>1</td>
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<tr>
<td>Actor</td>
<td>5</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preacher</td>
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<td>3</td>
<td>1</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Laborer</td>
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<td>1</td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td>Serviceman</td>
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<td>2</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Announcer</td>
<td>3</td>
<td>2</td>
<td>23</td>
<td></td>
<td>1</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Accountant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Pilot</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>1</td>
</tr>
<tr>
<td>Manager</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Bartender</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Bricklayer</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>1</td>
</tr>
<tr>
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</tr>
<tr>
<td>Policeman</td>
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<td></td>
<td>1</td>
</tr>
<tr>
<td>Doctor</td>
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<td></td>
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<td></td>
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<tr>
<td>Merchant</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td>Electrician</td>
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<td><strong>Totals</strong></td>
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<td><strong>47</strong></td>
<td><strong>47</strong></td>
<td><strong>47</strong></td>
<td><strong>47</strong></td>
<td><strong>47</strong></td>
<td><strong>47</strong></td>
</tr>
</tbody>
</table>

Table II presents a summary of the estimates of occupation for each of the seven voices. Voice F shows no
indication that it has an occupational stereotype since the subjects guessed 19 different occupations for it. No other voice showed this much variation in occupational guesses. Since voice F was the hardest voice to identify by both age and occupation, this voice was selected to record both the high and low ethos versions of the speech in the main experiment.

Since a number of the previous studies in ethos have used radio announcers to record the speeches in the studies, it is interesting to note that voices E and G were advanced students in speech working currently as radio announcers. Voice E showed a strong occupational stereotype with almost one-half of the subjects correctly identifying its occupation. Voice G showed less of a stereotype; still almost one-third of the auditors identified it correctly. If a voice shows this strong an occupational stereotype, one cannot help wondering the effect this would have on the terminal ethos of a "speaker" in an experiment dealing with ethos.

The experimenter selected voice C to record the speeches of introduction used in the experiment. Table I reveals that this voice has the second largest variance. Table II shows that voice C does have a strong "teacher" stereotype, but the experimenter decided that this image would be appropriate for the voice delivering the introductory speeches. In any case, this factor was held constant by having the same voice record both introductions.
Measuring Instruments

The measuring instruments, the dependent variables for the present study, were the ethos semantic differential and a cloze procedure form developed to measure the information gained from the speech. This section will discuss both the theoretical and practical use of these instruments.

The Ethos Semantic Differential

In their comprehensive survey of experimental research in ethos, Andersen and Clevenger conclude, "Many techniques of measurement have been applied to ethos: among these are ranking, sociograms, prestige indexes, linear rating scales, Thurstone scales, and the semantic differential." Only the last of these gives a practical method of employing the multivariate measure of ethos that appears to be necessary. Andersen developed such a semantic differential specifically designed to measure ethos and at the time of the present study his semantic differential was the only one available to the experimenter.

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7 Andersen and Clevenger, op. cit., p. 78.
8 Ibid., p. 76.  
9 Andersen, op. cit.
10 David K. Berlo reported the development of a similar semantic differential in an unpublished paper at the Speech Association of America Convention, New York City, December 29, 1961. In personal correspondence with the author (March 8, 1963), Berlo stated, "We still have not decided the best way to report our data."
The semantic differential is most prominently identified with the work of Osgood, Suci, and Tannenbaum. They describe it as "a highly generalizable technique of measurement which must be adapted to the requirement of each research problem to which it is applied." The major hypothesis of the semantic differential is that rating objects or ideas in relation to bipolar adjectives will measure the most important components of meaning. Bipolar terms such as hot versus cold, clean versus dirty, and fair versus unfair are continua along which connotative meanings are expressed. Each of the bipolar sets of adjectives is a scale on the semantic differential. The number of these sets usually range from about six to more than thirty. The customary procedure is to use a seven-point continuum for each set of bipolar adjectives. The concept to be rated, usually a noun, is placed at the top of the page above the bipolar scales.

Since meaning is considered to be multidimensional rather than existing on only one continuum, the isolation of the various facets of meaning is important in developing a semantic differential. The usual procedure for the development of a semantic differential begins with the


\[\text{12 Ibid., p. 76.}\]

\[\text{13 Ibid., pp. 25-30, 76-85.}\]
selection of scales. A number of subjects use these scales in reacting to various concepts related to the end purpose of the semantic differential being developed. The experimenter then sums the scales over both subjects and concepts to give a single inter-correlational matrix of every scale with every other scale. He factor analyzes this matrix of correlation coefficients by a method giving orthogonal factors. Then he rotates the factor matrix which emerges to achieve maximum differentiation of factor loadings for the various scales.\(^\text{14}\)

Osgood and his associates have found three very stable factors in their studies. They report these factors as follows:

A pervasive **evaluative factor** in human judgment regularly appears first and accounts for approximately half to three-quarters of the extractable variance. Thus the attitudinal variable in human thinking, based as it is on the bedrock of rewards and punishments both achieved and anticipated, appears to be primary. . . . The second dimension of the semantic space to appear is usually the **potency factor**, and this typically accounts for approximately half as much variance as the first factor - this is concerned with power and the things associated with it, size, weight, toughness, and the like. The third dimension, usually about equal to or a little smaller in magnitude than the second, is the **activity factor** concerned with quickness, excitement, warmth, agitation and the like.\(^\text{15}\)

More directly related with the present considerations on ethos was their finding that:

\(^{14}\)Ibid., pp. 35-36.  \(^{15}\)Ibid., pp. 72-73.
When the sample of things being judged is restricted in some fashion, the nature and order of magnitude of the factors may change. For example, when judgments are limited to socio-political concepts (people and politics), there seems to be a coalescence of the second and third factors into what might be called a "dynamism factor."16

The semantic differential is a superior technique for measuring attitude because the factors are empirically determined. In studying the reliability of the technique, Tannenbaum found that over a five-week period test-retest coefficients ranged from .87 to .93.17 The validity of the technique depends upon the adequacy of the sample of terms presented to the subjects and on the adequacy of the sample of subjects themselves. The validity of the instruments has been supported in several ways. The differential has high face validity since most people would cluster the concepts in approximately the same way without using the differential.18 In addition, the three main factors, evaluative, potency, and activity, have been consistent in appearance and in the amount of variance explained.19 Comparisons of the evaluative scales on attitude with Thurstone and Guttman scales of known validity support the idea that the evaluative factor of the semantic differential is an index of attitude.20 In the original validation studies,

16 Ibid., p. 74.  
17 Ibid., p. 192.  
18 Ibid., pp. 192-193.  
19 Ibid., pp. 325-326.  
20 Ibid., pp. 193-195.
Osgood, Suci and Tannenbaum used college students as subjects because they were readily available and because the final instruments would be largely used with these groups. Further experimentation indicates that holding the concepts constant and changing subjects, e.g., using schizophrenics versus normal subjects, or Americans versus Japanese or Koreans, does not upset the high degree of consistency in factor structure. However, changing the concepts surveyed does change the factor structure. In his survey of the semantic differential, Nunnally concludes, "Considering the wide use of the instrument and the string of interesting research results, the semantic differential gives real promise as a measurement of connotative meaning."

Andersen described the purpose of developing a semantic differential for ethos in the following manner, "Viewing the image of the speaker as a concept, the semantic differential technique was employed to discover the dimensions of judgment relative to speakers. This technique provided an empirical answer based upon the responses of beginning speech students."

Andersen first determined the adjective scales by

\[\text{Ibid.}, \ p. \ 32.\]  \[\text{Ibid.}, \ p. \ 326.\]


\[\text{Andersen, op. cit.}, \ p. \ 69.\]
surveying the experimental and theoretical literature on ethos and by consulting thesauri and dictionaries for adjectives used to describe ethos. From these words, he selected twenty-two pairs of bipolar adjectives for the preliminary instrument on the basis of clarity, frequency, and diversity of reference. All bipolar adjectives chosen were judgmental rather than factual. Andersen selected six of the pairs because they had shown relatively pure and heavy loadings on one of the three factors found in previous semantic differentials. Only one of these did not appear in the list of adjectives obtained in the survey. Andersen then randomized the scales in order of presentation and in the favorableness or unfavorableness of the initial presentation term. The concepts to which the subjects reacted were the names of sixteen individuals who were prominent in national and international affairs. The subjects, 180 undergraduate students in basic speech courses, rated each of the sixteen concepts on all twenty-two scales.25

Using the data from the 130 usable booklets, Andersen computed product-moment correlations on an IBM 650. The resulting matrix of correlation coefficients represented the correlation between each of the scales obtained by summing over the subjects on each of the concepts. This procedure gave a total of 2,080 scores. Andersen factor

25 Ibid., pp. 69-71.
analyzed the matrix of correlations according to the Washington Principle Axis technique which extracts orthogonal factors, the maximum amount of variance with each factor, and provides a mathematically unique least squares solution.

Using the criterion of selecting only the factors with roots larger than one, Andersen found two factors on the preliminary semantic differential. He rotated these according to merimax procedure programmed for the IBM 650. Before rotation, Factor I accounted for 45.6 per cent of the total variance and was judged to be identical with the evaluative factor in many previous semantic differentials. This factor not only included the scales which are usually found in the evaluative factor, but also showed the dominance of this factor which has been found in other studies. The second factor accounted for 15.9 per cent of the variance before rotation and, since it included scales which had previously appeared in both potency and activity factors, Factor II was labeled "dynamism." On the final instrument, the ethos semantic differential, the following scales represent the evaluative factor: honest-dishonest, sympathetic-unsympathetic, immoral-moral, unfair-fair, good-bad, and reasonable-unreasonable. Scales of uninteresting-interesting, weak-strong, aggressive-nonaggressive, fast-slow, and active-passive represent the dynamism factor.  

\(^{26}\)Ibid., pp. 71-72.  \(^{27}\)Ibid., pp. 73-75.
The randomized version of the test used in the present study appears in the Appendix.

The Cloze Procedure

Like the semantic differential, cloze procedure is a generalized technique of measurement that adapts to various problems rather than being a specific test. Wilson L. Taylor originally developed this technique as a measure of readability. Taylor has found cloze procedure "to be an effective gauge of success in learning, general intelligence, and specific technical knowledge." ²⁸

Taylor based cloze procedure on a functional unit of measure called a "cloze." This word comes from the Gestalt psychology term "closure," which refers to the human tendency to view as a whole any familiar but incomplete pattern. For example, if one is shown an incomplete circle, one will tend to "see" it as being a complete circle. Just as one can complete a broken circle, one can complete a "broken" sentence, i.e., one with words omitted, if one is familiar with the sentence or information in it. Taylor defines a cloze unit as "any single occurrence of a successful attempt to reproduce accurately a part deleted from a 'message' (any language product) by deciding, from the context that remains, what the missing part should

He defines close procedure as:

A method of intercepting a message from a 'transmitter' (writer or speaker), mutilating its language patterns by deleting parts, and so administering it to 'receivers' (readers or listeners) that their attempts to make the patterns whole again potentially yield a considerable number of close units.  

This theory is put into practice by taking the passage that will be used in the test and deleting words by some random counting method. The usual methods are using a table of random numbers or deleting every nth word without considering the function of meaning of the words. A standard length blank replaces each missing word. Each subject has a copy of the mutilated passage and tries to fill in each blank by guessing the missing word. The subject's score on the test is the number of times that he correctly replaces the original word.  

A series of empirical studies showed that preparing a close form by deleting every fifth word was a good approach. Statistical analysis indicated that a subject's responses to successive blanks in a close procedure with every fifth word omitted were statistically independent. Taylor found that:


30 Ibid.

31 Ibid.

32 Nunnally, op. cit., p. 397.

A series of about fifty blanks is roughly sufficient to allow the chances of mechanically selecting easy or hard words to cancel out and yield a stable score of the difficulty of a passage, or the performance of an individual, despite what specific words the counting-out process may delete.34 His studies also showed that such a random deletion of any word yielded equal or more discriminating results than systems which omitted only easy words or only hard words.35

In considering the nature of scores on cloze procedure, Lee J. Cronback has determined that cloze scores may be treated as "true scores" in statistical analysis. This fact indicates that experimenters may use the usual statistical procedure for handling test data to analyze the results of cloze procedure.

Theoretical and empirical tests support the validity of using cloze procedure as a test for comprehension as well as readability. Readability or listenability and comprehension are essentially synonymous terms. A high readability (or listenability) score of a selection only indicates that the material is easy for the average reader (or listener) to understand. The individual's performance on cloze procedure depends heavily on how well he understands the material on the test. For this reason, his

34 Ibid.
36 Ibid., p. 20.
cloze score depends "on the factors which affect comprehension, such as general language facility, specific knowledge, and vocabulary relevant to the materials at hand, native ability to learn, attention, motivation, and so on." The more one learns from hearing a speech, the better he should score on a cloze procedure test over this information.

Taylor conducted a study for the United States Air Force to determine if "the cloze scores of individual subjects would correlate significantly with their performance on carefully constructed preknowledge and immediate-recall tests of the content of the material presented and (with) a standardized aptitude or 'intelligence' test of supposed 'ability to understand.'" Taylor correlated the cloze procedure with comprehension tests which had been previously constructed and validated by the best current procedure. Taylor used the Armed Forces Qualification Test to measure the "ability to understand" or "intelligence." He found:

If the comprehension tests, adopted as criteria, really did index (a) knowledge of the article's content before it was read, (b) the relative amount of that content remembered immediately after study, (c) the increase in knowledge of the content brought about by study, and (d) general aptitude or ability to understand, in agreement with another criterion, the AFQT, then it appears that cloze scores did so too. In the kinds of results they yielded, the

\textsuperscript{37}Ibid., p. 19. \textsuperscript{38}Ibid.,
two kinds of tests were very different in the cost, effort, and time required for construction. The advantages seem to lie with cloze procedure in general, and with the 'any' method of mutilation in particular.\textsuperscript{39}

\textbf{Development of Independent Variables}

The independent variables of this experiment were two levels of non-artistic ethos, two levels of artistic ethos, and two periods of retention. The two levels of non-artistic ethos called for the construction of two different speeches of introduction, one with high ethos and one with low. The two levels of artistic ethos required the development of two versions of the same speech. One version contained statements which strengthened the ethos of the speaker while the other contained phrases which lowered the ethical appeal of the speaker. Varying the time between the hearing of the speech and the administration of the recall test produced different retention periods. This section will describe the construction and handling of each of these independent variables in detail.

\textbf{Construction of the Introductions}

The non-artistic ethical appeal of a speaker is the image of the speaker which the audience holds prior to hearing him speak. One way to determine this image is by creating a fictitious "speaker" and using a speech of

\textsuperscript{39}\textit{Ibid.}, p. 25.
introduction to control the amount of information that the audience has about the speaker. The experimenter invented two possible speakers and then wrote a speech of introduction for each of them.

The introduction designed to create a speaker with low ethical appeal presented the speaker as a sophomore English major named Bill Gillis. In order to prevent subjects from trying to identify the voice, Bill was introduced as a student attending a different university. The introduction described him as being inexperienced with teaching machines and programmed learning, the subject area for the speech. A complete text of the low ethos introduction is in the Appendix.

The high ethos introduction described the speaker as Dr. Robert E. Rayburn, a scholar who had pioneered in the development of teaching machines and programmed learning. The introduction claimed that *Who's Who in America* listed Rayburn as being well known for work in both education and experimental psychology. These were the fields in which he had earned degrees from Duke University and Harvard University. At the present time he holds the rank of Professor at Princeton University. The introduction gave the titles of four fictitious books in psychology and programmed learning written by the high ethos speaker. The Appendix contains a complete text of this introduction.
Method

Subjects: The subjects for this part of the study were 76 students taking basic speech courses at Louisiana State University. Thirty-seven males and 39 females composed this group.

Procedure: The same speaker recorded both the high and low ethos introductory speeches. Chapter III, "Selection of Voice Used in Recording," described the selection of this speaker.

The subjects remained in their own classroom during a regular class period for this part of the present study. The experimenter read instructions to the subjects explaining they were helping determine the impact of two introductory speeches. A copy of these instructions is in the Appendix. The experimenter asked the subjects to fill out a personal data sheet and assured them that all information would be kept confidential. A copy of this data sheet is in the Appendix. The experimenter explained the use of the ethos semantic differential (see the Appendix) and answered any questions asked by the subjects. After all the subjects indicated they understood how to use the semantic differential, the experimenter played the first recorded introduction. The subjects then recorded their expectations of that "speaker" on the semantic differential. Then the experimenter played the second introduction which the subjects rated. The order of presentation of the low and high ethos
introductions was counterbalanced with different groups of subjects in order to control any serial position effect.

Results and Discussion

Table III presents the means, variances, and standard deviations of the scores on the evaluative factor of the ethos semantic differential for the high and low ethos introductions.

TABLE III.--Means, variances, and standard deviations of scores on the evaluative factor of the ethos semantic differential for the low and high ethos introductions (N = 76, each subject tested under both conditions)

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variances</td>
<td>23.489</td>
<td>13.37</td>
</tr>
<tr>
<td>Standard Deviations</td>
<td>4.847</td>
<td>3.66</td>
</tr>
</tbody>
</table>

Before making a t test for the significance of the difference between the means of the test scores for the evaluative factor of the low and high ethos introductions, the experimenter checked to determine if the test assumption of homogeneity of variance was true. The variances presented in Table III yield an F test score of


41Ibid., pp. 106-107.
1.76 which for 75 and 75 degrees of freedom is significant beyond the .01 level of significance ($F_{0.01} = 1.72$). The null hypothesis that the variances for the evaluative factor of the samples are heterogeneous is accepted.

Edwards advises, "With equal n's and heterogeneity of variance, we may calculate $t$ in the usual way, but the obtained value of $t$ should be evaluated in terms of the tabled value for $\frac{\nu}{2}$ the number of degrees of freedom we would have with homogeneity of variance." Using 37 degrees of freedom instead of 75 degrees of freedom, the means presented in Table III yield a value of $t = 8.623$ which is significant beyond the 1 per cent level of confidence ($t_{0.01} = 2.7145$). The null hypothesis that any difference between these means can be attributed to chance alone is rejected. For the evaluative factor there is a significant difference between the mean scores on the ethos semantic differential for the high and low ethos introductions.

Table IV presents the means, variances, and standard deviations for the scores on the dynamism factor of the ethos semantic differential for the low and high ethos introductions.

Using the variances presented in Table IV, the $F$ test for the assumption of homogeneity of variance gives an

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F test score of 1.225 which for 75 and 75 degrees of freedom is not significant even at the high level of confidence of .10 ($F_{.10} = 1.40$). The null hypothesis that the variances are heterogeneous is rejected.

TABLE IV.--Means, variances, and standard deviations of scores on the dynamism factor of the ethos semantic differential for the low and high ethos introductions (N = 76, each subject tested under both conditions)

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>21.05</td>
<td>27.5</td>
</tr>
<tr>
<td>Variances</td>
<td>41.597</td>
<td>25.8</td>
</tr>
<tr>
<td>Standard Deviations</td>
<td>6.45</td>
<td>5.08</td>
</tr>
</tbody>
</table>

Since there is homogeneity of variance for the scores on the dynamism factor of the ethos semantic differential, the difference between the means presented in Table IV gives a value of $t = 7.73$ which for 75 degrees of freedom is significant beyond the 1 per cent level of confidence ($t_{.01} = 2.643$). The null hypothesis that any difference between these means can be attributed to chance alone is rejected. On the dynamism factor there is a significant difference between the mean scores on the ethos semantic differential for the high and low introductions.

Since there are significant differences between the mean scores on the ethos semantic differential for the high and low introductions on both the evaluative factor and the
dynamism factor, the experimenter used these two introductions as recorded to give the two levels of high and low non-artistic ethos in the main experiment.

In answer to one of the experimental questions, the results of this development of one of the independent variables demonstrates that carefully constructed introductions assigning a recorded speech to speakers of supposedly different ethos can actually produce significantly different levels of non-artistic ethos as measured by the ethos semantic differential.

Construction of the Speeches

Artistic ethos, the second independent variable, consists of those stimuli emitted by the speaker during the speech which either improve or harm the audience's image of the speaker. The experimenter controlled the high and low artistic ethos levels by constructing both high and low ethos versions of a speech. He wrote a basic informative speech on the subject, "Teaching Machines and Programmed Learning." Keeping the organization constant and making as few changes as possible in the information contained in the speech, the experimenter made additions, deletions, and substitutions to construct a high artistic ethos version and a low artistic ethos version of this speech.

The form of the speech which employed techniques designed to establish a high level of ethical appeal included
phrases to show the speaker was a man of intelligence, good character, and good will. The speech indicated the intelligence of the speaker with statements showing extensive direct and indirect experience with the subject, giving exact details with accuracy and precision, and using technical jargon and extensive vocabulary. Statements showing confidence in himself and modest self-pride revealed the speaker's good character. The speaker demonstrated good will toward the listeners by expressing interest in their well-being and addressing them directly.

In the low artistic ethos version of the speech, the experimenter tried to include statements which would indicate the speaker was lacking in knowledge of his subject, personal pride, and interest in his audience. The speech showed the speaker's lack of knowledge by specific indications of unfamiliarity with programmed learning. His statements were relatively vague, and there was less use of technical words and a less extensive vocabulary than in the high ethos speech. The wording indicated that the speaker did not have confidence in himself. A lack of respect for his audience and an indirect choice of wording further lowered the ethical appeal of this speaker.

Both the high and low versions of the speech are in the Appendix.
Method

Subjects: The subjects for this part of the study were 72 students taking basic speech courses at Louisiana State University. The low ethos version of the speech was heard by 39 students. Twenty-two males and 17 females were in this group. Thirty-three students heard the high version of the speech. This group included 18 males and 15 females.

Procedure: To provide maximum control of delivery factors, the same individual recorded both versions of the speech which were practiced equally. Chapter III, "Selection of Voice Used in Recording," described the choice of this speaker. The speaker recorded the speeches on tape under similar conditions holding volume and tone setting constant. As far as possible, the speaker maintained the same rate for both versions of the speech. The experimenter instructed the speaker to deliver both speeches as effectively as possible.

The experimenter administered this part of the present study to the subjects in their own classroom during a regular class period. He read instructions to the subjects explaining that they were to evaluate a speaker as a person from listening to him speak. The Appendix contains a complete copy of these instructions. The subjects filled in a personal data sheet after being assured that all information would be kept confidential. The Appendix contains a copy of this data sheet. Then the experimenter explained
the use of the ethos semantic differential (see the Appendix) and answered any questions asked by the subjects. After all indicated that they understood how to use the semantic differential, the experimenter played the appropriate version of the speech. After hearing the complete speech, the subjects filled in the ethos semantic differential and gave the experimenter their papers.

Results and Discussion

The means, variances, and standard deviations of the scores on the evaluative factor of the ethos semantic differential for the high and low artistic ethos versions of the speech are in Table V.

**TABLE V.**—Means, variances, and standard deviations of scores on the evaluative factor of the ethos semantic differential for the high and low ethos speeches

<table>
<thead>
<tr>
<th></th>
<th>Low (N = 39)</th>
<th>High (N = 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>21.87</td>
<td>25.24</td>
</tr>
<tr>
<td>Variances</td>
<td>33.27</td>
<td>11.56</td>
</tr>
<tr>
<td>Standard Deviations</td>
<td>5.77</td>
<td>3.40</td>
</tr>
</tbody>
</table>

Before making a t test for the significance of the difference between the means of the test scores for the high and low versions of the speech, the experimenter checked the validity of the test assumption of homogeneity of variance. The variances in Table V give an F test score
of 2.88 which for 40 and 32 degrees of freedom is significant beyond the 1 per cent level of confidence ($F_{0.01} = 2.25$). The null hypothesis that the variances of the samples for the evaluative factor are heterogeneous is accepted.

Since the sample variances are not estimates of the same populations variance, the experimenter followed Edwards' instructions for heterogeneity of variance with unequal n's. The difference between the means presented in Table V yield a value of $t = 3.071$. Employing the correction by Cochran with 32 and 38 degrees of freedom, this $t$ value is significant beyond the 1 per cent level of significance ($t_{0.01} = 2.719$). The null hypothesis that any difference between these means is the result of chance alone is rejected. For the evaluative factor there is a significant difference between the mean scores on the ethos semantic differential for the high and low artistic ethos versions of the informative speech.

The means, variances, and standard deviations of the scores on the dynamism factor of the ethos semantic differential for the high and low artistic ethos versions of the speech are in Table VI.

Using the variances presented in Table VI, the test for homogeneity of variance gives an $F$ score of 1.120 which for 30 and 40 degrees of freedom is not significant even at

$^{43}$Ibid., pp. 106-107.
the high level of confidence of .10 \((F_{.10} = 1.54)\). The null hypothesis that the sample variances are not estimates of the same population variance is rejected.

TABLE VI.--Means, variances, and standard deviations of scores on the dynamism factor of the ethos semantic differential for the low and high ethos speeches

<table>
<thead>
<tr>
<th></th>
<th>Low ((N = 39))</th>
<th>High ((N = 33))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Means</td>
<td>15.41</td>
<td>23.15</td>
</tr>
<tr>
<td>Variances</td>
<td>25.73</td>
<td>28.82</td>
</tr>
<tr>
<td>Standard Deviations</td>
<td>5.07</td>
<td>5.37</td>
</tr>
</tbody>
</table>

Since there is homogeneity of variance for the scores on the dynamism factor of the ethos semantic differential, the experimenter calculated a \(t\) score for the difference between the means presented in Table VI. They yielded a value of \(t = 6.65\) which for 70 degrees of freedom is significant beyond the .01 level of significance \((t_{.01} = 2.65)\). The null hypothesis that any difference between these means can be attributed to chance alone is rejected. On the dynamism factor there is a significant difference between the mean scores on the ethos semantic differential for the high and low artistic ethos versions of the informative speech.

Since there are significant differences between the mean scores on the ethos semantic differential for the low
and high artistic ethos versions of the speech for both the evaluative factor and the dynamism factor, the experimenter used these two versions of the speech as recorded to give the two levels of high and low artistic ethos in the main experiment.

These results indicate that changes from low to high artistic ethical appeal in the form of the absence or presence of statement implying high or low ethical appeal within a speech can significantly change the ethos level of a speaker as measured by the ethos semantic differential.

Immediate and Delayed Recall

The informative speaker is often interested in the retention of the information in the speech as well as the immediate learning of the audience. The third variable in the present study concerned the differences between the immediate recall and the delayed recall of the audience.

The learning process makes a strong contribution to behavior since learned information is retained for some time. However, memory is not perfect. One should regard memory as a process rather than a constant condition because learned material is retained less and less as time goes by. In experimental studies, a test for information administered soon after the stimuli would be a test of learning, while one given after a fairly long interval would be a
test of retention. In the present investigation, one might interpret the immediate recall test as a test of learning and the delayed test as a measure of retention of information.

The functional relationship between the retention process and the elapsed time may be described as a curve of retention. The main characteristic of this curve is a rapid decline immediately after learning and a gradual flattening out as the interval is prolonged. The decline of retention is very nearly proportionate to the logarithm of the elapsed time. Inspection of a number of graphs of retention reveals that the greatest decrease in retention occurs during the first twenty-four hours and the negative acceleration is gradual after this time. In this study, the experimenter gave the immediate test within five minutes after the conclusion of the stimuli. Little retroactive inhibition would have occurred during this short interval. The experimenter gave the delayed test two weeks after the date of the initial stimuli. Most of the decline in retention should have occurred by this time. A delay

45 Ibid.
period of longer than two weeks was not practical because the end of the semester was near and was not wise theoretically because the decline in retention is logarithmically related to the elapsed time.

Andreas points out, "Normally, every point on a retention curve will be contributed by a different group of subjects, since repeatedly giving tests to the same persons would constitute a renewal of learning to some extent." Following the usual procedure in this study, one group of subjects took the immediate recall test while another group took the delayed recall test.

The Main Experiment

<table>
<thead>
<tr>
<th>Ethos .</th>
<th>Recall</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-Artistic</td>
<td>Artistic</td>
<td>Immediate</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low</td>
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<td>Low</td>
<td></td>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low</td>
</tr>
</tbody>
</table>

Fig. 1.--2 X 2 X 2 Experimental design for analysis of variance.

Figure 1 shows the basic design for this study, a 2 X 2 X 2 analysis of variance design. This experimental design permitted the measurement of recalled information, both immediate and delayed, as a function of the two levels of non-artistic ethos and the two levels of artistic ethos. The eight cells provide for all possible combinations of these three independent variables. Each cell received treatment as follows:

<table>
<thead>
<tr>
<th>Cell</th>
<th>Non-Artistic</th>
<th>Artistic</th>
<th>Recall</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>High</td>
<td>High</td>
<td>Immediate</td>
<td>HHI</td>
</tr>
<tr>
<td>B</td>
<td>High</td>
<td>High</td>
<td>Delayed</td>
<td>HHD</td>
</tr>
<tr>
<td>C</td>
<td>High</td>
<td>Low</td>
<td>Immediate</td>
<td>HLI</td>
</tr>
<tr>
<td>D</td>
<td>High</td>
<td>Low</td>
<td>Delayed</td>
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<td>E</td>
<td>Low</td>
<td>High</td>
<td>Immediate</td>
<td>LHI</td>
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<tr>
<td>F</td>
<td>Low</td>
<td>High</td>
<td>Delayed</td>
<td>LHD</td>
</tr>
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<td>Low</td>
<td>Low</td>
<td>Immediate</td>
<td>LLI</td>
</tr>
<tr>
<td>H</td>
<td>Low</td>
<td>Low</td>
<td>Delayed</td>
<td>LLD</td>
</tr>
</tbody>
</table>

Method
Subjects: The subjects for the present study were students in sections of Speech 1, Speech Fundamentals, and Speech 51, Public Speaking, at Louisiana State University during the Spring Semester and Summer Session of 1963. Each group in the study was composed of 10 students from Speech 1 and 10 students from Speech 51. The experimenter selected the subjects on the basis of a matched group design based on the local percentile ranks of the subjects on the American Council of Education Psychological Examination, 1952, which the students had taken during their freshman orientation period. The experimenter did not consider other factors in
the selection of subjects. He randomly assigned the groups to the various treatment cells in the $2 \times 2 \times 2$ analysis of variance experimental design. The other students in each section of Speech 1 and Speech 51 for whom the A.C.E. Psychological Examination scores were available were in the control group.

Table VII presents a description of the subjects for each of the treatment groups and the control group. The table (p. 65) includes the number of subjects, the mean A.C.E. Psychological Examination percentile rank, the mean age, the number of subjects of each sex, and the number of subjects of each class at the university for each of the eight treatment groups and for the control group.

The mean percentile ranks on the A.C.E. Psychological Examination for the treatment groups ranged from 52.60 to 55.10 with the control group having a mean of 55.18. To determine if the treatment groups had been accurately matched on the basis of the scores on this intelligence test, the experimenter performed a simple analysis of variance. The result of these calculations are in Table VIII, page 66. Since the mean square within groups is larger than the mean square between groups, the null hypothesis that the difference between the means is not significant is accepted. The difference between the means of the eight treatment groups are not sufficiently great to indicate that they are estimates of different population means. The
<table>
<thead>
<tr>
<th>Treatment</th>
<th>HHI</th>
<th>HHD</th>
<th>HLI</th>
<th>HLD</th>
<th>LHI</th>
<th>LHD</th>
<th>LLI</th>
<th>LLD</th>
<th>CONTROL</th>
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</thead>
<tbody>
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<td>20</td>
<td>20</td>
<td>20</td>
<td>65</td>
</tr>
<tr>
<td>Mean A.C.E. Percentile</td>
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<td>55.10</td>
<td>54.20</td>
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<td>8</td>
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<td>Junior</td>
<td>7</td>
<td>4</td>
<td>5</td>
<td>3</td>
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<td>2</td>
<td>5</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Senior</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
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</tbody>
</table>
experimenter tested the differences between the variances of the treatment groups using Bartlett's Test for Homogeneity. With 7 degrees of freedom, the resulting \( \chi^2 \) (Chi Square) of .4909 was not significant (\( \chi^2_{.05} = 14.067 \)); therefore, the null hypothesis that the separate values of variance do not differ any more than is to be expected from chance alone is accepted. Since neither the differences between the means nor the differences between the variances even approach significance, one can assume that the treatment groups have been adequately matched on the basis of the percentile ranks on the A.C.E. Psychological Examination.

TABLE VIII.--Analysis of variance table for the A.C.E. Psychological Examination percentile scores

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>169.29</td>
<td>7</td>
<td>24.184</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>116503.15</td>
<td>152</td>
<td>766.468</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>116672.44</td>
<td>159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mean ages for the subjects in the treatment groups ranged from 19.40 to 20.40 with the control group having a mean age of 19.74. The experimenter tested these differences between the mean ages of the various treatment groups using analysis of variance. The resulting

\[ \chi^2 \]
calculations are in Table IX. Since the mean square within groups is larger than the mean square between groups, the null hypothesis that there is no significant difference between the mean ages of the various treatment groups is accepted.

TABLE IX.--Analysis of variance table for the mean ages of subjects in the treatment groups

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>19.45</td>
<td>7</td>
<td>2.779</td>
<td></td>
</tr>
<tr>
<td>Within Groups</td>
<td>928.55</td>
<td>152</td>
<td>6.109</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>948.00</td>
<td>159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Concerning the sex differences between the treatment groups, Table VII (p. 65) showed that the number of males in the 20 subjects in each treatment group varied from 7 to 14. The experimenter tested the significance of the difference using Chi Square. With 7 degrees of freedom, the resulting $X^2$ of 3.60 was not significant at the .05 level of confidence ($X^2_{.05} = 14.067$). The data offers no significant evidence against the null hypothesis that any differences in the sex of the different treatment groups could have resulted from chance alone.

Table VII (p. 65) showed the number of students in each of the treatment groups which were either freshmen, sophomores, juniors, or seniors. The experimenter determined the significance of these differences by using a $4 \times 8$
table of $\chi^2$. This table resulted in a $\chi^2$ of 25.383, which for 30 degrees of freedom was not significant at the .05 level of significance ($\chi^2_{.05} = 43.773$). The null hypothesis that any differences in academic classification of the subjects in the various treatment groups was by chance alone is accepted.

Since the treatment groups appear to be adequately matched on the basis of ranks on an intelligence test, and there are no significant differences between the groups on mean ages, sex, or year in school, any differences which appear in the experiment would not be the result of these organismic variables.

Procedure: In order to measure the dependent variable, the information conveyed in a speech, the experimenter devised an informational test using the cloze procedure technique. He constructed a paragraph from material which was in both the high and low artistic ethos versions of the speech. Following the normal practice with cloze procedure, he deleted every fifth word. He randomly determined the fourth word to be the initial omission. The final form, containing sixty blanks, is in the Appendix.

The experimenter tested both the subjects in the treatment and control groups during the regularly scheduled class periods. The instructor of the class read out the names of those students who were to be in the treatment group and asked them to accompany the experimenter to
another room. Those students remaining in the original classroom became control subjects. In compiling the data reported in this study, the experimenter considered only those students for whom grades on the A.C.E. Psychological Examination were available.

The instructor told the control subjects that they were helping to determine the level of redundancy in a written passage while the experimenter told the treatment subjects that they would hear a speech and afterward express their reaction to it. This was the only difference between the instructions given the control subjects and the treatment subjects. A copy of the instructions to each group is in the Appendix. After the control group received the test booklet, they filled out the biographical information on the top sheet (see the Appendix) and then they filled in each blank on the cloze procedure form with the most appropriate word. At the end of the twelve minutes which were allotted for completing the cloze procedure form, the instructor took up the test booklets.

The experimenter took the treatment subjects to another room where chairs for ten people were arranged and a tape recorder was set up. The experimenter used the same room with all but ten of the treatment subjects. These ten heard the tape and completed the tests in their regular classroom. If any of the selected subjects were absent on the day set aside for the experiment, the
experimenter gave them appropriate treatment independently at the next regularly scheduled class period when they were present. The experimenter read the opening instructions to the group and then started the tape recorder. The subjects heard either the high or low non-artistic ethos introduction followed by either the high or low artistic ethos version of the speech. The experimenter maintained the level for the volume and tonal control as consistently as possible. At the end of the speech, the experimenter passed out the test booklets and instructed the subjects to fill out the biographical information on the first page. The subjects learned how to use the semantic differential and filled it in giving their reaction to the speaker. The experimenter then instructed the groups chosen to receive the immediate recall test to fill in each blank on the cloze procedure form with the most appropriate word. After twelve minutes, the experimenter took up the test booklets. The experimenter allowed the groups which had been randomly selected to take the delayed test to leave as soon as all had finished the ethos semantic differential. None of them knew that they would be examined further concerning the speech at a later date. Two weeks later, the experimenter took these treatment groups from their class and gave them the cloze procedure information test. He read the same instructions and gave them the same amount of time as both the control group and the groups given the immediate recall
The Appendix contains the instructions used with each of the treatment groups.

Results and Discussion

The mean scores on the cloze procedure test for each of the treatment groups are in Table X. These means range from 35.60 for the low non-artistic ethos, low artistic ethos, immediate recall group to 32.25 for the low non-artistic ethos, low artistic ethos, delayed recall group. The control group has a mean score of 31.37 on the cloze procedure test. Using Dunnett's test for comparison with a control group, the following treatment groups are very significantly better than the control group at the .01 level of confidence: the high non-artistic ethos, low artistic ethos, immediate recall group and the low non-artistic ethos, low artistic ethos, immediate recall group. The high non-artistic ethos, high artistic ethos, immediate recall group; the high non-artistic ethos, high artistic ethos, delayed recall group; and the high non-artistic ethos, low artistic ethos, delayed recall group are significantly better than the control group at the .05 level of confidence. The mean scores of the other three treatment groups: the low non-artistic ethos, high artistic ethos, immediate recall group; the low non-artistic ethos, high

---

50Ibid., pp. 152-154.
artistic ethos, delayed recall group; and the low non-
artistic ethos, low artistic ethos, delayed recall group
are not significantly better than the mean score of the
control group on the cloze procedure test.

TABLE X.—The mean scores on the cloze procedure test for
each combination of high and low non-artistic and artistic
ethos as a function of the immediate and delayed recall
periods

<table>
<thead>
<tr>
<th>Recall</th>
<th>Non-Artistic and Artistic Ethos</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HH</td>
</tr>
<tr>
<td>Immediate</td>
<td>33.65</td>
</tr>
<tr>
<td>Delayed</td>
<td>33.40</td>
</tr>
</tbody>
</table>

The grand mean for all of the treatment groups on
the cloze procedure test is 33.53. A $t$ test for the signif-
icance of the difference between this grand mean and the
mean score of the control group yields a $t$ of 2.58 which is
significant beyond the .01 level of significance ($t_{.01} =
2.457$). Under the conditions of this study, the null hy-
pothesis that a recorded informative speech does not signi-
ficantly increase the information of the combined experi-
mental subjects over a control group which has not heard
the speech is rejected.

The experimenter applied Dunnett's test for com-
parison with a control to the grand mean for the immediate
test groups and the delayed test groups to investigate
whether or not both scored significantly better than the control group. The grand mean for the groups receiving the immediate test is 34.09 and the grand mean for the groups receiving the delayed test is 32.73. Dunnett's test reveals that the grand mean of the immediate test group is very significantly better than the mean of the control group at the .01 level of confidence. Within the limitations of this study, the null hypothesis that hearing a recorded informative speech does not significantly increase the immediate information of experimental subjects over a control group which has not heard the speech is rejected. Dunnett's test applied to the mean for the delayed test groups reveals that this mean is not significantly better than the mean for the control group. Within the limitations of the present study, the null hypothesis that hearing a recorded informative speech does not significantly increase the delayed information of experimental subjects over a control group which has not heard the speech is accepted. Under the conditions of this study, the experimental subjects tested immediately after hearing the speech scored significantly better than the control subjects who had not heard the speech. On the other hand, the experimental subjects tested two weeks after hearing the speech did not score significantly better than the control group.

The experimenter applied a 2 X 2 X 2 analysis of
variance test to the cloze procedure test scores. Table XI presents the analysis of variance for the cloze procedure test scores of the two levels of artistic ethos, non-artistic ethos, and periods of recall.

Table XI. Analysis of variance for the cloze procedure test scores for the two levels of artistic ethos, non-artistic ethos, and periods of recall.

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Artistic Ethos</td>
<td>20.30</td>
<td>1</td>
<td>20.30</td>
<td></td>
</tr>
<tr>
<td>B Non-Artistic Ethos</td>
<td>3.90</td>
<td>1</td>
<td>3.90</td>
<td></td>
</tr>
<tr>
<td>C Recall Period</td>
<td>49.50</td>
<td>1</td>
<td>49.50</td>
<td>2.005</td>
</tr>
<tr>
<td>A B</td>
<td>6.02</td>
<td>1</td>
<td>6.02</td>
<td></td>
</tr>
<tr>
<td>A C</td>
<td>17.57</td>
<td>1</td>
<td>17.57</td>
<td></td>
</tr>
<tr>
<td>B C</td>
<td>31.52</td>
<td>1</td>
<td>31.52</td>
<td>1.277</td>
</tr>
<tr>
<td>A B C</td>
<td>18.88</td>
<td>1</td>
<td>18.88</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>3752.15</td>
<td>152</td>
<td>24.69</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3899.84</td>
<td>159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This F test reveals that there is no significant difference on the cloze procedure test for different levels of any of the main effects, or for any of the interactions of the main effects. From these results the following conclusions must be drawn:
1. The null hypothesis that changes from high to low non-artistic ethical appeal in the form of varied speaker introductions do not significantly affect the recall of a recorded informative speech is accepted.

2. The null hypothesis that changes from high to low artistic ethical appeal in the form of the absence or presence of statements implying high or low ethical appeal within the speech itself does not affect the recall of a recorded informative speech is accepted.

3. The null hypothesis that no significant difference exists between the immediate recall and delayed recall of subjects hearing a recorded informative speech is accepted.

4. The null hypothesis that the interaction of high and low non-artistic ethical appeal and high and low artistic ethical appeal does not significantly affect the recall of a recorded informative speech is accepted.

As the independent variables for this study were developed, the experimenter tested them to ensure that the levels of the variables differed significantly. The difference between the high and low non-artistic ethos as reflected in the speeches of introduction, and between the high and low artistic ethos as developed in the two versions of the informative speech met this requirement. The subjects in the eight treatment groups in the main experiment received varied combinations of these two variables,
providing some insight into the terminal ethos which results from each of the combinations of high and low non-artistic ethos and high and low artistic ethos.

The mean scores on both the evaluative and dynamism factors of the ethos semantic differential for each of the eight treatment groups is in Table XII.

**TABLE XII.**—The mean scores on both the evaluative and dynamism factors of the ethos semantic differential for each of the treatment groups

<table>
<thead>
<tr>
<th>Factor</th>
<th>Treatment Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HHI</td>
</tr>
<tr>
<td>Ev.</td>
<td>28.25</td>
</tr>
<tr>
<td>Dy.</td>
<td>25.10</td>
</tr>
</tbody>
</table>

For the evaluative factor the mean total scores ranged from 28.70 for the high non-artistic ethos, high artistic ethos, delayed recall group to 23.00 for the low non-artistic ethos, low artistic ethos, delayed recall group. On the dynamism factor, the high non-artistic ethos, high artistic ethos, immediate recall group had the highest mean score (25.10) and the high non-artistic ethos, low artistic ethos, delayed recall group had the lowest mean score (17.75).

Table XIII presents the analysis of variance for the scores on the evaluative factor of the ethos semantic
differential for the two levels of artistic ethos, non-artistic ethos, and periods of recall.

TABLE XIII.--Analysis of variance for the scores on the evaluative factor of the ethos semantic differential for the two levels of artistic ethos, non-artistic ethos, and periods of recall

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Artistic Ethos</td>
<td>801.03</td>
<td>1</td>
<td>801.03</td>
<td>41.08a</td>
</tr>
<tr>
<td>B Non-Artistic Ethos</td>
<td>5.63</td>
<td>1</td>
<td>5.63</td>
<td></td>
</tr>
<tr>
<td>C Recall Period</td>
<td>.03</td>
<td>1</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>A B</td>
<td>78.39</td>
<td>1</td>
<td>78.39</td>
<td>4.02b</td>
</tr>
<tr>
<td>A C</td>
<td>.39</td>
<td>1</td>
<td>.39</td>
<td></td>
</tr>
<tr>
<td>B C</td>
<td>36.09</td>
<td>1</td>
<td>36.09</td>
<td>1.85</td>
</tr>
<tr>
<td>A B C</td>
<td>7.24</td>
<td>1</td>
<td>7.24</td>
<td></td>
</tr>
<tr>
<td>Within</td>
<td>2963.60</td>
<td>152</td>
<td>19.497</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3892.40</td>
<td>159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(aP < .01\)
\(bP < .05\)

For the evaluative factor, only two of the sources of variance are significant in determining the terminal ethos of the speaker. The reaction of the high and low level of artistic ethos averaged over the levels of non-artistic ethos and periods of recall differs significantly
beyond the .01 level of confidence. The reaction of the audience on the evaluative factor to the interaction of the high and low artistic ethos and high and low non-artistic ethos is significant at the .05 level of confidence. These results indicate that the terminal ethos of the speaker in the present study, as measured by the evaluative factor of the ethos semantic differential, was primarily determined by the two levels of artistic ethos presented in the speech. The subjects' reaction to the speaker was modified partially by interaction of the levels of non-artistic ethos with the levels of artistic ethical appeal.

Table XIV presents the analysis of variance for the scores on the dynamism factor of the ethos semantic differential for the two levels of artistic ethos, non-artistic ethos, and periods of recall. The only sources of variances for the dynamism factor of the ethos semantic differential to differ significantly were the reaction of the high and low levels of artistic ethical appeal averaged over the levels of non-artistic ethos and periods of recall. This difference is significant beyond the .01 level of confidence. This result indicates that the terminal ethos of the speaker in the present study, as measured by the dynamism factor of the ethos semantic differential, was primarily determined by the two levels of artistic ethos presented in the speech.
TABLE XIV.--Analysis of variance for the scores on the dynamism factor of the ethos semantic differential for the two levels of artistic ethos, non-artistic ethos, and periods of recall

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Squares</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Artistic Ethos</td>
<td>1139.56</td>
<td>1</td>
<td>1139.56</td>
<td>35.48a</td>
</tr>
<tr>
<td>B Non-Artistic Ethos</td>
<td>1.06</td>
<td>1</td>
<td>1.06</td>
<td></td>
</tr>
<tr>
<td>C Recall Period</td>
<td>.01</td>
<td>1</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>A B</td>
<td>16.26</td>
<td>1</td>
<td>16.26</td>
<td></td>
</tr>
<tr>
<td>A C</td>
<td>4.56</td>
<td>1</td>
<td>4.56</td>
<td></td>
</tr>
<tr>
<td>B C</td>
<td>77.01</td>
<td>1</td>
<td>77.01</td>
<td>2.397</td>
</tr>
<tr>
<td>A B C</td>
<td>110.54</td>
<td>1</td>
<td>110.54</td>
<td>3.44</td>
</tr>
<tr>
<td>Within</td>
<td>4941.75</td>
<td>152</td>
<td>32.12</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6290.75</td>
<td>159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( ^aP < .01 \)

The experimenter applied product-moment correlation coefficients to the scores of the experimental subjects on the A.C.E. Psychological Examination, the cloze procedure test, and evaluative and dynamism factors of the ethos semantic differential. Very significant correlations (.01 level of confidence) were found between these scores: the evaluative and dynamism factors, the A.C.E. Psychological Examination and the cloze procedure, the A.C.E. Psychological Examination and the dynamism factor, and the cloze
procedure and the evaluative factor. The correlation of .712 between the scores on the evaluative and dynamism factors on the ethos semantic differential indicates that these two factors do not vary independently. To a fairly large degree, the reaction of subjects to the speaker on each of these factors determines his reaction to the speaker on the other factor.

The correlation of .5236 between the scores on the A.C.E. Psychological Examination and the cloze procedure test for information reveals that the intelligence of the subjects affected the amount recalled from hearing a recorded informative speech. To determine if this significant correlation between intelligence and recall of an informative speech held for both immediate and delayed recall of the speech, the experimenter ran separate correlations for those subjects tested for immediate recall and those tested for delayed recall. The correlation between intelligence as measured by the A.C.E. Psychological Examination and the cloze procedure test was .5954 for the immediate test group and .4526 for the delayed test group. Both of these correlations are significant at the .01 level of confidence but the difference between these two correlations is not significant. The null hypothesis that there is no significant correlation between the intelligence of subjects and both immediate and delayed recall is rejected.

Although the correlation of -.2757 between the
scores on the A.C.E. Psychological Examination and the dynamism factor, and the correlation of -.2676 between the scores on the evaluative factor and the cloze procedure test are significant, these correlations are too low to be very dependable. In this experiment, the first of these correlations reveals that, to a slight extent, the higher the intelligence of the subject (as measured by the A.C.E. Psychological Examination), the lower he rated the speaker on the dynamism factor of the ethos semantic differential. The second correlation indicates that, to a slight extent, the lower the subject rated the speaker on the evaluative factor of the ethos semantic differential, the higher the subject scored on the cloze procedure information test.

TABLE XV.--Table of correlations between percentile scores on the A.C.E. Psychological Examination, the cloze procedure scores, and the scores on the evaluative and dynamism factors on the ethos semantic differential

<table>
<thead>
<tr>
<th></th>
<th>Cloze Procedure</th>
<th>Evaluative</th>
<th>Dynamism</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.C.E. Examination</td>
<td>.5236</td>
<td>-.1917</td>
<td>-.2757(a)</td>
</tr>
<tr>
<td>Cloze Procedure</td>
<td></td>
<td>-.2676</td>
<td>-.1248</td>
</tr>
<tr>
<td>Evaluative</td>
<td></td>
<td></td>
<td>.7120(a)</td>
</tr>
</tbody>
</table>

\(a\)p < .01
IV. SUMMARY AND CONCLUSIONS

Summary of Procedure

The experimenter designed the present study to test the effect of artistic and non-artistic ethical appeal, or ethos, on the immediate and delayed recall of information in an informative speech. Ethos is the audience's image of the speaker resulting from both the main effects and interaction of their knowledge of the speaker prior to the speech and of any additional insights into his character that result from the speech. Non-artistic ethos is the image of the speaker held by the audience prior to the beginning of the speech. Artistic ethos is the image resulting from the arrangement, invention, style, and delivery of the speaker. For measurement purposes, in this dissertation ethos is defined as the characteristics measured by the evaluative and dynamism scales on the ethos semantic differential by Andersen.¹

The experimenter tested the effect of artistic and non-artistic ethos on the immediate and delayed recall of information with a 2 X 2 X 2 analysis of variance design. This experimental design permitted the study of recalled

¹Andersen, op. cit.
information, both immediate and delayed, as a function of the two levels of non-artistic ethos and the two levels of artistic ethos. The three independent variables in the study were the high and low levels of non-artistic ethos, the high and low levels of artistic ethos, and the immediate and delayed periods of recall.

The experimenter developed the two levels of non-artistic ethos by writing two speeches of introduction. One introduction created a speaker with high ethical appeal and the other described a speaker of low ethical appeal. The same person recorded both of these introductions. A pilot study determined that a significant difference existed between the high and the low non-artistic ethos introductions on both the evaluative and dynamism scales of the ethos semantic differential.

The experimenter developed the two levels of artistic ethical appeal by writing two versions of an informative speech entitled "Teaching Machines and Programmed Learning." Keeping the organization constant and making as few changes as possible in the information contained in the speech, the experimenter made additions, deletions, and substitutions to construct a high artistic ethos version and a low artistic ethos version of this speech. A person whose voice did not reveal any stereotypes of age and occupation recorded both versions of the speech. A pilot study determined that a significant difference existed
between the high and the low artistic ethos versions of the speech.

The experimenter handled the two periods of recall by testing half of the subjects immediately after they heard the speech and testing the other half two weeks after they heard the speech. The dependent variable for the study was an informational test constructed by using the cloze procedure technique. The experimenter deleted every fifth word in a paragraph that contained material found in both versions of the speech. This mutilated paragraph comprised the information test.

The experimenter selected the subjects on the basis of a matched group design based on the local percentile ranks of the subjects on the American Council of Education Psychological Examination. The eight treatment groups each contained twenty subjects. Two different basic speech courses each provided ten of the subjects in each treatment group. The experimenter randomly assigned the groups to the various treatment cells in the $2 \times 2 \times 2$ analysis of variance experimental design. The control group consisted of the other students in the two courses for whom the A.C.E. Psychological Examination scores were available.

Each group of the experimental subjects heard one of the non-artistic ethos introductions followed by one of the artistic ethos versions of the speech. Immediately after hearing the tapes, each subject filled out a
biographical information form and a copy of the ethos semantic differential. The experimental subjects in the immediate recall groups then filled in the cloze procedure test for information. The subjects in the delayed recall group returned to their classes after they had completed the ethos semantic differential. They took the cloze procedure test for information two weeks later. The control subjects filled out the biographical information form and the cloze procedure test for information without hearing the introduction or speech.

Conclusions

Within the limitations of this study and the method used the following conclusions seem to be justified:

1. Carefully constructed speeches of introduction assigning a recorded speech to speakers of supposedly different ethos can actually produce significantly different levels of non-artistic ethos as measured by the ethos semantic differential.

All of the previous studies reviewed in this dissertation assumed that ascribing a speech to different people changed the non-artistic ethical appeal. Not one of these studies tested to determine whether the difference between the two ethos levels was actually significant. By using the ethos semantic differential to test the ethos level presented in the speeches of introduction, the present study has shown that two different introductions can
establish two significantly different levels of non-artistic ethos. This result does not mean that simply ascribing the speech to different persons is sufficient to establish significantly different levels of non-artistic ethos. When levels of non-artistic ethos are the independent variables in a study, the experimenter should determine in advance whether significant differences exist between the levels.

This result has important implications for rhetorical theory. A person giving a speech of introduction has the power to determine, to some extent, the image or ethos of the speaker in the minds of the audience. Therefore, the person giving an introduction may influence, to some degree, the effects of the speech.

2. Differences in artistic ethos in the form of statements within a speech implying high or low ethos can significantly change the ethos level of a speaker as measured by the ethos semantic differential.

The study by Andersen was the only previous study directly concerned with attempting to establish two different levels of artistic ethos. The present study confirms Andersen's finding that it is possible to establish two significantly different levels of artistic ethical appeal by adding, deleting, and substituting statements designed to raise or lower the ethical appeal of the speaker. The area of artistic ethos has suffered from a lack of
experimental investigation in the past. This experimenter has found that one cannot safely assume that two different levels of artistic ethos exist in two different versions of a speech. In experimental studies, one must test this assumption. A relatively untrained audience may not be affected by subtle changes between the two versions of the speech. In rhetorical theory, much of what rhetoricians have referred to as differences in ethos between two speeches or between two speakers may have been totally lost on a naive audience.

3. Under the conditions of this study, hearing a recorded informative speech does significantly increase the information of some experimental groups over a control group which has not heard the speech.

3a. The experimental subjects tested immediately after hearing the speech scored significantly better on the cloze procedure test for information than the control subjects who had not heard the speech.

3b. The experimental subjects tested two weeks after hearing the speech did not score significantly better on the cloze procedure test for information than the control group scored on the cloze procedure test.

4. Under the conditions of this study, no significant difference exists between the immediate and delayed recall of subjects hearing a recorded informative speech.

Considering both immediate and delayed recall
groups together, the subjects who heard the speech did
significantly better on the information test than the con-
trol subjects who did not hear the speech. Considering the
groups separately, those subjects tested immediately after
hearing the speech scored significantly better than the
control subjects. The experimental subjects who took the
test after a delay of two weeks, scored better than those
subjects who had not heard the speech, but the difference
was not significant. The mean score for the delayed recall
group lay between the mean score of the control group and
the mean score of the immediate test group. The mean score
for the delayed group was not significantly different from
either of the other two groups. Although the delayed re-
call subjects forgot much during the two week period between
the speech and the test of recall, they still scored higher
than the control subjects who had not heard the speech. The
informative speaker who desires retention as well as immedi-
ate recall must adopt techniques which will aid the auditor
in remembering the speech.

5. Under the conditions of this study, a signifi-
cant correlation exists between the intelligence of the sub-
jects as measured by the A.C.E. Psychological Examination
and their recall of a recorded informative speech.

5a. This significant correlation between the in-
telligence and recall existed for the subjects tested im-
mediately after hearing the speech and the subjects tested
two weeks later.

The significant positive correlation between the scores of the subjects on the A.C.E. Psychological Examination and their scores on the cloze procedure test for recall indicate that the subjects making the higher test scores on the intelligence test tended to make the higher scores on the test for recall of information. The intelligence of the subjects seems to affect, to some extent, the ability of the subjects to recall the information contained in an informative speech. The experimenter should control this extraneous variable to guard against it affecting the result of his study. In the present study, the experimenter provided the necessary control with a matched group design. The informative speaker should make adjustment for the intelligence of the individual auditors affecting their ability to recall the information in a speech. This finding may have more implications for speakers addressing audiences of average or below average intelligence than for speakers addressing college audiences.

6. Under the conditions of this study, changes from high to low non-artistic ethos in the form of varied speaker introductions do not significantly affect the recall of a recorded informative speech.

7. Under the conditions of this study, changes from high to low artistic ethos in the form of the absence or presence of statements within a speech implying high or
low ethos do not affect the recall of a recorded informative speech.

8. Under the conditions of this study, the interaction of high and low non-artistic ethos and high and low artistic ethos does not significantly affect the recall of a recorded informative speech.

The results of this study indicate that artistic and non-artistic ethos, either as main effects or as interactions, do not affect the ability of an audience to remember a recorded informative speech. Within the limits of the present study, ethos in general does not seem to have any affect upon the ability of an audience to recall information. The previous studies in this area were only concerned with non-artistic ethos. The present study confirms the lack of relationship between non-artistic ethos and informative speaking reported by Hovland and Weiss, Hovland and Mandell, Highlander, and Rea. These results concur even though the present study is not confounded by persuasion. In addition, the present study shows that neither artistic ethos nor the interaction of artistic ethos with non-artistic ethos affect the recall of an audience.

A number of studies have established a relationship

2Hovland and Weiss, op. cit.
3Hovland and Mandell, op. cit.
4Highlander, op. cit.
5Rea, op. cit.
between the speaker's ethical appeal and the speaker's ability to persuade an audience. These studies found that an audience is more prone to accept the ideas of a speaker with high ethos than one with low ethos. The present study does not find a similar relationship between ethos and recall of information. It appears that the auditor's opinion of the communicator does not affect his retention of information. Perhaps he remembers information regardless of whether or not he respects its source. On the other hand, persuasion requires more than the feedback of information. The auditor's evaluation of the speaker seems to influence whether or not he accepts the views of the speaker. It appears that the only factors operative in the recall of information are the normal processes of forgetting.

This result is important to rhetorical theory. The speaker whose only purpose is to inform his audience does not need to be as concerned with establishing his ethos as the speaker whose purpose is to persuade his audience. If the informative speaker desires the audience to act on the knowledge that he gives them, then he should try to establish high ethical appeal with his audience. Since this is usually the case, many informative speakers should adapt their arrangement, invention, style, and delivery to heighten their ethical appeal.

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9. Under the conditions of this study, the artistic factor determined the terminal ethos of the speaker on both the evaluative and dynamism scales of the ethos semantic differential.

9a. On the evaluative scale, the interaction of the levels of non-artistic ethos with the levels of artistic ethos modified the terminal ethos of the speaker.

In the present study, the artistic factor was the principal determinant of the terminal ethos of the speaker. A partial effect came from an interaction of the non-artistic ethos with the artistic ethos. Andersen's\(^7\) result was similar but he found a stronger interaction effect. In the present study, the artistic ethos factor appears to have overpowered the non-artistic ethos factor in determining the final image of the speaker. In any case, these findings appear to verify the supposition that ethos is not a fixed value. Most of the previous studies assumed that non-artistic ethos determined the terminal ethos of the speaker and ignored any possible effect the speech itself might have had on the terminal ethos. In this study, the artistic ethos appears to be more dominant than the image of the speaker the audience held prior to the speech. This finding indicates that future studies should not be based on a fixed ethos concept, but should consider the effect of

\(^7\)Andersen, op. cit.
the speech on the image of the speaker. This finding also indicates that the speaker can, to some extent, determine his terminal ethos with his speech.

The present study found a significant correlation between the scores on the evaluative and dynamism scales on the ethos semantic differential. This result indicates that, to some degree, the score an auditor gives the speaker on one scale is related positively to the score on the other scale. The auditor who rates a speaker high on the evaluative scale will tend to rate him high on the dynamism scale. The two scales are not independent. A similar finding was not reported in the earlier study by Andersen.  

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8 Ibid.
BIBLIOGRAPHY

Books


**Articles and Periodicals**


Arnett, Claude E., Davidson, Helen H. and Lewis, Hallett N. "Prestige as a Factor in Attitude Change," *Sociology and Social Research,* XVI (1931), 49-55.


Goldstein, H. "Reading and Listening Comprehension at Various Rates," Teacher College Contributions to Education, No. 821, (1940).


Henrickson, E. H. "The Relation Among Knowing a Person, Liking a Person, and Judging Him as a Speaker," Speech Monographs, VII (1940), 22-25.


———. "Experimental Studies of Changes of Attitude:


Smith, George H. "Belief in Statements Labeled Fact and


Unpublished Material


Bryson, Kenneth D. "An Experimental Study of the Effectiveness of the 'Denotative' Speech in Persuasion."


Kirsten, Barbara. "Experimental Study to Determine the


Instructions for Voice Selection

Like most other fields, those of us in speech are working to improve our knowledge of our field. Today you are being asked to participate in an experiment to determine how much information about a person can be guessed by listening to his voice alone. From the sheet you have just been given you can see that for each voice you should estimate the age and occupation of the person. Each voice will read the same material. The first voice is for you to become accustomed to the material and to practice guessing age and occupation. It is my voice. It is your first impressions, the immediate feeling about the voice that we want. Are there any questions?
Instructions for Test of Non-Artistic Ethos

This spring we are conducting a series of experiments in speech. One of the problems we face is determining the impact of two introductions that we plan to use. Therefore, I want to play both of these introductions and have you react to them on the semantic differential. First, please fill out the information on the top sheet of the booklet that has been given to you. All information will be kept confidential and will have no effect on your grades in this course.

Now, turn to the second page and I will explain how the semantic differential is used. The concept you are evaluating is the speaker who is described in the introduction. After hearing each of the introductions you indicate on each of the ten scales your feelings about the speaker being introduced. The middle or fourth position on the scale represents a "neutral" or "don't know" or "does not apply" attitude toward the continuum presented by the two words. Then, moving out from the center, the third and fifth positions represent "slightly"; the second and sixth positions represent "quite"; the first and seventh represent "extremely." For example, if you had the scales Hot-Cold and if you thought the speaker was quite cold, you would check the space six on the Hot-Cold scale; if he were extremely hot you would check space one. Are there any
questions?

Check your expectations of the speaker on this topic. Please do not try to guess what reaction we want, just respond honestly.
Instructions for Test of Artistic Ethos

This spring we are conducting a series of experiments in speech. One of the problems we face is evaluating a speaker as a person from listening to him speak. You will be asked to evaluate an unknown speaker as a person after you hear him speak on "Teaching Machines and Programmed Learning."

First, please fill out the information on the top sheet of the booklet that has been handed to you. All information will be kept confidential and will have no effect on your grades in this course.

Now, turn to the second page and I will explain how the semantic differential is used. The concept you are evaluating is the speaker himself. After hearing the entire speech, you indicate on each of the ten scales your feelings about the speaker. The middle or fourth position on the scales represent a "neutral" or a "don't know" or "does not apply" attitude toward the continuum presented by the two words. Then, moving out from the center, the third and fifth positions represent "slightly"; the second and sixth positions represent "quite"; the first and seventh represent "extremely." In other words, the farther you move out from the center on each scale, the more you feel that the word at the end applies to the speaker. For example, if you had the scale Hot-Cold and if you thought the
speaker was quite cold, you would check the space six on the Hot-Cold scale; if he were extremely hot you would check space one. Are there any questions?

There are no right or wrong answers. Don't worry over individual items, just give your first impressions. Please do not try to guess what reaction we want, just respond honestly.
Instructions for Immediate Test Groups

You have been selected at random from the other members of your class to participate in an experiment in speech. We hope that the results of this and other experiments will help us to improve our understanding of speech and in turn to improve the value of the material presented to you and future students in our classes. We also hope that you will improve your understanding of speech through what you hear and do. You will be asked now to listen to a speech and after hearing it to express your reaction to the speech. Your reaction to the speech will not affect your grade in the speech course. It is not necessary to take notes.

Play tape
then pass out the test booklet

The booklet which I just passed out will provide a means of getting your reaction to the speech in a form we can use. First, please fill out the biographical information on the top sheet.

Now, turn to the second page and I will explain how the semantic differential is used. The concept you are evaluating is the speaker himself, as a person. You are to indicate on each of the ten scales your feelings about the speaker. The middle or fourth position on the scales represents a "neutral" or a "don't know" or "does not apply"
attitude toward the continuum presented by the two words. Then, moving out from the center, the third and fifth positions represent "slightly," the second and sixth positions represent "quite," the first and seventh represent "extremely." In other words, the farther you move out from the center on each scale, the more you feel that the word at the end applies to the speaker. For example, if you had the scale Hot-Cold and if you thought the speaker was quite cold you would check space six on the Hot-Cold scale; if he were extremely hot you would check space one. Are there any questions?

There are no right or wrong answers. Don't worry over individual items, just give your first impressions. Please do not try to guess what reaction we want, just respond honestly.

Now that you have finished page two turn to the last page. This page gives you a mutilated paragraph which has every fifth word removed. You are to guess for each blank the word which you think should be inserted in the blank. As would be expected, some of the words will be quite simple. Others will be more difficult. If you do not know what word should go in a blank guess the best you can. If you cannot guess anything, put an "X" in the blank to show that you have tried to answer it. You will have twelve minutes in which to fill in all of the blanks. Are there any questions?
Instructions for Delayed Test Groups

I. Instructions given at the time of the speech

You have been selected at random from the other members of your class to participate in an experiment in speech. We hope that the results of this and other experiments will help us to improve our understanding of speech and in turn to improve the value of the material presented to you and future students in our classes. We also hope that you will improve your understanding of speech through what you hear and do. You will be asked now to listen to a speech and after hearing it to express your reaction to the speech. Your reaction to the speech will not affect your grade in the speech course. It is not necessary to take notes.

Play tape
then pass out the test booklet

The booklet which I just passed out will provide a means of getting your reaction to the speech in a form we can use. First, please fill out the biographical information on the top sheet.

Now, turn to the second page and I will explain how the semantic differential is used. The concept you are evaluating is the speaker himself, as a person. You are to indicate on each of the ten scales your feelings about the speaker. The middle or fourth position on the scales
represents a "neutral" or a "don't know" or "does not apply" attitude toward the continuum presented by the two words. Then, moving out from the center, the third and fifth positions represent "slightly," the second and sixth positions represent "quite," the first and seventh represent "extremely." In other words, the farther you move out from the center on each scale, the more you feel that the word at the end applies to the speaker. For example, if you had the scale Hot-Cold and if you thought the speaker was quite cold you would check space six on the Hot-Cold scale; if he were extremely hot you would check space one. Are there any questions?

There are no right or wrong answers. Don't worry over individual items, just give your first impressions. Please do not try to guess what reaction we want, just respond honestly.

II. Instructions given two weeks later at the time of the test

Please put your name at the top of the paper.

Two weeks ago you heard a recorded speech on teaching machines and programmed learning. In light of this speech, you are now asked to fill out the page just given to you. This page is a mutilated paragraph which has every fifth word removed. You are to guess for each blank the word which you think should be inserted in the blank. As would
be expected, some of the words will be quite simple. Others will be more difficult. If you do not know what word should go in a blank, guess the best you can. If you cannot guess anything, put an "X" in the blank to show that you have tried to answer it. You will have twelve minutes in which to fill in all of the blanks. Are there any questions?
Instructions for Control Group

You have been selected at random from the other members of your class to participate in an experiment in speech. We hope that the results of this and other experiments will help us to improve our understanding of speech and in turn to improve the value of the material presented to you and future students in our classes. We also hope that you will improve your understanding of speech through what you do. You will be asked now to help determine the level of redundancy in a written passage. Your work in this experiment will not affect your grade in this course.

Pass out test booklets

First, please fill out the biographical information on the top sheet.

Now, turn to the second page and I will explain how to fill in the cloze procedure form. This page gives you a mutilated paragraph which has every fifth word removed. You are to guess for each blank the word which you think should be inserted in the blank. As would be expected, some of the words will be quite simple. Others will be more difficult. If you do not know what word should go in a blank, guess the best you can. If you cannot guess anything, put an "X" in the blank to show that you tried to answer it. You will have twelve minutes in which to fill
in all of the blanks. Are there any questions?
High Ethos Introduction

With the number of students in schools at all levels rising so rapidly, there is much concern over improving the methods of instruction. Today we have the good fortune of being able to hear one of the scholars pioneering in the development of one of these new techniques, programmed learning, more commonly called teaching machines.

When I learned that Dr. Robert E. Rayburn was going to speak to us, I looked in *Who's Who in America* and found the following information about him. Since Dr. Rayburn is well known for his work in both experimental and educational psychology, it is not surprising to find that he did his undergraduate work in psychology at Duke University and received both his Master of Arts degree and his Doctor of Philosophy degree from Harvard University. Two years ago both his Alma Mater, Duke, and another of his home-state schools, North Carolina State College, recognized his contributions to science by awarding him an honorary Doctor of Science degree.

Since graduating from Harvard, Dr. Rayburn has been teaching at Princeton University, moving in relatively short time from Assistant Professor to Associate Professor, and now to full Professor. During this time he has

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1 The playing time for the recorded introduction was 1 minute and 44 seconds.
published four books, *Principles of Educational Psychology*, *Learning Theory*, *Applied Programmed Learning*, and *The Art of Automated Teaching*. The appearance of these books reflect the early and continuing research of Dr. Rayburn in the methods of efficient and effective teaching. These books are largely responsible for developing the field of programmed learning to the level which it has reached today.

We will now hear from Dr. Robert E. Rayburn speaking on the subject, "Teaching Machines and Programmed Learning." Dr. Rayburn.
Low Ethos Introduction¹

Our speaker today, Bill Gillis, is a sophomore at Northeastern Louisiana State College majoring in English. The subject of his speech is, "Teaching Machines and Programmed Learning." His choosing to speak on this subject might be as much a surprise to you as it was to me, but a few minutes ago Bill explained to me that he happened to pick up a recent magazine and an article on this subject interested him. Bill felt that even though many of us have more background in education and educational methods than he does, we might be interested in hearing his views on this timely topic. Now speaking on "Teaching Machines and Programmed Learning" we have Bill Gillis.

¹The playing time for the recorded introduction was 39 seconds.
High Artistic Ethos Speech

TEACHING MACHINES AND PROGRAMMED LEARNING

When (you) hear the phrase "teaching machine" (you) immediately think of a mechanical man with a pointer in one hand, chalk in the other, and a recorded voice droning on and on, giving one fact after another. Because of this popular impression, the (preferred) way to refer to this new development in teaching is by the term "programmed learning." (Since you, and your children will be greatly affected by this new method of teaching, I am happy that I can report to you) what programmed learning is, what have been the results of using this approach, and how it is being used in teaching (various) subjects (now).

First, to answer the question "What is programmed learning?" (you) must begin with some understanding of one of (our current theories) on learning itself. In general, (I have found through careful research) that learning (occurs most efficiently) when a student makes a response to a stimulus (or cue) and discovers immediately whether his response is (appropriate or not). This is called the process of stimulus, response, and reinforcement. The subject is presented a stimulus to which he responds. He is

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1The words in parentheses occurred only in the high ethos version of the speech. The playing time for the recorded speech was 8 minutes and 19 seconds.
immediately informed (about) whether (his response) is right or wrong and in turn is (reinforced) for making the (correct response). (My study and investigation conducted over a period of time confirms that a student) learns more by (making the correct responses) the first time rather than by making errors.

(My research further shows that) of the familiar teaching situations, the tutorial most closely fit(s) the requirement of (the) stimulus, response, and reinforcement (learning model). (The tutor) presents (stimuli) in the form of information and questions. The student responds with answers and (counter) questions. The instructor positively (reinforces or) rewards the student's (responses) when they are (appropriate). (After exhaustive investigation, I find that) the typical classroom differs from the tutorial system in the amount of interchange between the instructor and student. A student receives more stimulus information (per hour) in the classroom than he does from a tutor; (however), with a tutor he makes (substantially) more responses and receives (substantially) more (reinforcement). (Personally, I feel) this immediate reinforcement (is) necessary for efficient learning; therefore, the more responses a student makes which receive immediate (reinforcement), the more rapidly he will learn.

(The current issue of Programmed Instruction defines) programmed learning (as) a method of (ordering and)
preparing information in such a way as to provide each student with a stimulus, response, and reinforcement for each (bit) of information. (You) might say that it is (comparable to) each student (having) his own private (instructor). The learning program is prepared by an expert first breaking the subject down into hundreds of small, easy-to-take steps, (or frames). Each step leads to the next, and makes that next step easy to understand. Then, the expert adds to each (frame) some form of question, or questions, that will test the student's understanding of what he has just read. The student may be asked to (fill in the missing words of sentences, or he may be asked to) pick the correct answer out of several possible answers. Often a question will be asked in several different ways, in different (frames), to make sure that the student really understands what he has already learned and add to his understanding of it. This program is then tested on many students to determine which (frames) are (faulty), meaning that students miss them. (This) program (is revised) many times until the average student can work through the program and be correct in answering the questions (95 percent) of the time. (My theory is that when the student makes a mistake, it is usually the expert's fault).

Once a program has been developed, it (is) necessary to have an effective means of bringing a student into contact with it. (I have learned from my research that)
three (types) of (presentation devices can be used). (One of our devices) is the programmed textbook which (outwardly resembles) a traditional workbook. The student reads the information, constructs his answer, turns to the following page to check his answer, and then goes on to the next page to another information and question (frame). A second (method of presentation which I have frequently used is) called a scramble book. Instead of (requiring) the student (to construct) an answer, (our scramble book) allows him to choose an already constructed answer. In form it resembles a multiple choice test. The student studies a problem, works it out, and then chooses the one answer that he considers to be correct. If his choice was correct, he goes directly to the next problem. If his choice was wrong, he is directed to go to another page where he finds an explanation of his error. Each wrong answer to a given question sends a student to a different page in the book. A final (method) of presenting the program to the student (which I have studied extensively and helped develop) is with a teaching machine. It is any mechanical device which displays the program to the learner. It usually presents one frame at a time, provides some method for the student to indicate an overt response, shows whether the response is correct or not, prevents cheating by the student, and sometimes keeps a record of the number of errors. These machines vary in cost from $20 to several thousand dollars.
With this background understanding of what programmed learning and teaching machines are, you can better understand some of the results of using this method of instruction. (My friend, Dr. O. K. Moore of Yale University), through (adaptations of) this method (has taught) three or four year old children of average intelligence to read, write, and spell in three or four months. (Encyclopedia Britannica Films, Inc. reports that) in a study using high school (first year) algebra material, (seventeen) students used programmed materials during a (six week) summer session. At the end of this time the students were given the (Lankton First Year Algebra) examination. The failure rate was far below the failure rate expected when students take a year of algebra in such a short time. Half of the students were in the top (25 per cent) according to national (norms) and one student who had earlier failed first year algebra scored (in the 98th percentile). In a (Louisiana State) University study teaching a (remedial) mathematics course, the students using programmed materials during a summer session made higher scores on tests than similar students during a regular semester and a higher percentage made grades of C or better. The (technique for) presenting the material in such a manner that the student is given a stimulus, makes a response, and receives (reinforcement) appears to be more important than the devices used to present the program. (I have found in carefully
controlled experiments no significant difference in the learning which occurs whether the material is presented by programmed textbook, scramble book, or with teaching machines themselves. (My conclusion is) that more effective and efficient learning does occur, regardless of devices, if the material is programmed rather than presented in straight lecture or textbook form.

The (experimental) results just given might lead (you) to ask "What are some of the subjects which have been taught in this way?" (From the programs I have examined, I know) in mathematics, programs are now available for teaching Algebra (I and II), Plane Geometry, Trigonometry, and Statistics. (Extensive progress) has been (made) in presenting foreign languages in this fashion. Programs in German, Russian, Spanish, and Hebrew (are readily) available. There are also programs for teaching English grammar, spelling, music, physics, biology, chemistry, and electronics. In a lighter vein, you can learn to play bridge by teaching machine.

In conclusion, (although some have felt that teaching machines may take the place of the teacher, as you and your children make use of programmed materials in the future, you) should remember that programmed learning does not and is not intended to do the whole job of teaching. (Our programs are) now freeing some teachers from the machine-like aspects of teaching, like grading papers and
conducting classroom drills. There is (in my judgment) no substitute for the (good) classroom teacher. (I will always maintain that) good classroom teachers will, however, continue to search for better teaching tools like teaching machines and programmed learning.
TEACHING MACHINES AND PROGRAMMED LEARNING

When (an average undergraduate or high school student) hear(s) the phrase "teaching machine" (he) immediately (reacts like the typical teenager). (He) think(s) of a mechanical man with a pointer in one hand, chalk in the other, and a recorded voice droning on and on, giving one fact after another. Because of this popular impression, the (best) way to refer to this new development in teaching is by the term "programmed learning." (You probably will have little use for this information, but in order to have a better understanding of this new teaching method, I guess you probably need some idea of) what programmed learning is, what have been the results of using this approach, and how it is being used in teaching (some of your) subjects.

First, to answer the question "What is programmed learning"? (a teenager) must begin with some understanding of one of (the present ideas) on learning itself. In general, (it seems) that learning (happens best) when a student makes a response to a stimulus and discovers immediately whether his response is (right or wrong). (I think I have read that) this is (what is) called the process

1The words in parentheses occurred only in the low ethos version of the speech. The playing time for the recorded speech was 8 minutes and 2 seconds.
of stimulus, response, and reinforcement. The subject is presented a stimulus to which he responds. He is immediately informed whether (he) is right or wrong and in turn is (rewarded) for making the (right answer). (It looks like one) learns more by (being right) the first time rather than by making errors.

(I have little direct experience with this type of project, but) of the familiar teaching situations, the tutorial (system seems to) most closely fit the requirement of (this idea of) stimulus, response, and reinforcement. (A teacher) presents (stimuluses) in the form of information and questions. The instructor positively rewards the student's (answers) when they are (right). (They say) the typical classroom differs from the tutorial system in the amount of interchange between the instructor and student. (I guess that) a student receives more information in the classroom than he does from a tutor, (but) with a tutor he makes more responses and receives more (reward). (I know this is uninteresting, but) this immediate reward (seems) necessary for efficient learning; therefore, (I suppose) the more responses a student makes which receive immediate (reward), the more rapidly he will learn.

(I think someone has said that) programmed learning (is) a method of preparing information in such a way as to provide each student with a stimulus, response, and reinforcement for each (piece) of information. (One) might say
that it is (as if) each student (had) his own private (teacher). (I guess) the learning program is prepared by an expert first breaking the subject down into hundreds of small, easy-to-take steps. Each step leads to the next, and makes that next step easy to understand. Then the expert adds to each (step) some form of question, or questions, that will test the student's understanding of what he has just read. The student may be asked to pick the correct answer out of several possible answers. (Few people are interested in how this works, but) often a question will be asked in several different ways, in different (steps), to make sure that the student really understands what he has (read). (The expert repeats important steps in different words and at different places in the program, so the student can review what he has) already learned and add to his understanding of it. (I suppose) this program is then tested on many students to determine which (steps) are (bad), meaning that students miss them. (I hope you are not bored, but the) program (seems to be changed) many times until the average student can work through the program and be correct in answering the questions (most) of the time.

Once a program has been developed, (it seems to be) necessary to have an effective means of bringing a student in contact with it. (I haven't had much direct experience, but I think) three (ways) of (presenting it have been made).
(They say one) is the programmed textbook which (looks like) a traditional workbook. The student reads the information, constructs his answer, turns to the following page to check his answer, and then goes on to the next page to another information and question (step). (Even though you will probably never see one), a second (way appears to be) called a scramble book. Instead of (having) the student (write) an answer, (it) allows him to choose an already constructed answer. In form it resembles a multiple choice test. The student studies a problem, works it out, and then chooses the one answer that he considers to be correct. If his choice was correct, he goes directly to the next problem. If his choice was wrong, (I guess) he is directed to go to another page where he finds an explanation of his error. (Don't let me bore you, but) each wrong answer to a given question sends a student to a different page in the book. A final (way) of presenting the program to the student is with a teaching machine. It is any mechanical device which displays the program to the learner. It usually presents one step at a time, provides some method for the student to indicate a response, shows whether the response is correct or not, prevents cheating by the student, and sometimes keeps a record of the number of errors. (I think I've read that) these machines vary in cost from $20 to several thousand dollars.

With this background understanding of what
programmed learning and teaching machines are, one can better understand some of the results of using this method of instruction. (I don't understand why, but) through (changes in) this method three or four year old children of average intelligence (seem to have been taught) to read, write, and spell in three or four months. In a study using high school algebra material, (some) students used programmed materials during a summer session. (Not many people are interested in this but) at the end of this time the students were given (an) examination. The failure rate was far below the failure rate expected when students take a year of algebra in such a short time. (About) half of the students were in the top (part) according to national (scores) and one student who had earlier failed first year algebra scored (very high). In a university study teaching a (make-up) mathematics course, the students using programmed materials during a summer session made higher scores on tests than similar students during a regular semester and a higher percentage made grades of C or better. (I haven't seen too much information but) the (method of) presenting the material in such a manner that the student is given a stimulus, makes a response, and receives (reward) appears to be more important than the devices used to present the program. (I don't think there is any) difference in the learning which occurs whether the material is presented by programmed textbook, scramble book, or with teaching machines themselves.
(I assume) that more effective and efficient learning does occur, regardless of devices, if the material is programmed rather than presented in straight lecture or textbook form.

The results just given might lead (one) to ask "What are some of the subjects which have been taught in this way"? (I don't know too much about the available programs, but I think) in mathematics, programs are now available for teaching Algebra, Plane Geometry, Trigonometry, and Statistics. (Much work) has been (done) in presenting foreign languages in this fashion. Programs in German, Russian, Spanish and Hebrew (should be) available. (I suppose) there are also programs for teaching English grammar, spelling, music, physics, biology, chemistry, and electronics. In a lighter vein, one can even learn to play bridge by teaching machine.

In conclusion, (even though this will not affect you, I suppose one) should remember that programmed learning does not and is not intended to do the whole job of teaching. (It is) now freeing some teachers from the machine-like aspects of teaching, like grading papers and conducting classroom drills. (It looks like) there is no substitute for the classroom teacher. Good classroom teachers will, however, continue to search for better teaching tools like teaching machines and programmed learning. (I hope that if you are required to study mathematics,
English, or foreign languages by the program method, you will not complain or be unreasonable in your reaction to it. Work as best you can without being too juvenile).
Voice Selection Form

Name ___________________________ Speech_____ Section_____ 
Age_______ Classification_____________ Major______________

After listening to each voice, please estimate to the best of your ability the age and occupation of the speaker.

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<th>Speaker</th>
<th>Age</th>
<th>Occupation</th>
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<tbody>
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Biographical Form

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<td>Previous College Speech Classes</td>
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<td>Hometown</td>
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### Ethos Semantic Differential

**THE SPEAKER**

- **fair**: __________
- **reasonable**: __________
- **unsympathetic**: __________
- **aggressive**: __________
- **uninteresting**: __________
- **active**: __________
- **good**: __________
- **immoral**: __________
- **weak**: __________
- **fast**: __________

- **unfair**: __________
- **unreasonable**: __________
- **sympathetic**: __________
- **non-aggressive**: __________
- **interesting**: __________
- **passive**: __________
- **bad**: __________
- **moral**: __________
- **strong**: __________
- **slow**: __________
Learning takes place ______ a student makes a ______ to a stimulus and ______ immediately if his response ______ correct. In the tutorial ______ the tutor presents a ______ in the form of ______ and questions, the student ______ and the instructor rewards ______ student when he is ______. The typical classroom differs ______ the tutorial system in ______ the student receives more ______ in the classroom but ______ less responses and is ______ less. For efficient learning ______ immediate reward is necessary. ______ more responses a student ______ which receive immediate reward, ______ more rapidly he will ______.

Programmed learning is a ______ of preparing information to ______ each student with a _______, response, and reinforcement for ______ information taught. The program ______ prepared by an expert ______ breaks the subject into ______ steps and asks some ______ that will test the ______ understanding. Three devices used ______ this are the programmed ______, the scramble book, and ______ teaching machine. In the ______ textbook, the student reads ______ information, constructs his answer, ______ turns to the following ______ to check his answer. ______ the scramble book, the ______ chooses an already constructed ______. If his choice was
he goes directly to next problem. If wrong, goes to another page he finds an explanation his error. A teaching is any mechanical device presents one step at time, provides some method indicating a response, and whether this is correct. effective learning does occur the material is programmed than presented in lecture textbook form. Mathematics programs now available for teaching, geometry, trigonometry, and statistics. in German, Russian, Spanish, Hebrew are available. There also programs for teaching, spelling, music, physics, biology, and electronics.
Learning takes place when a student makes a response to a stimulus and discovers immediately if his response is correct. In the tutorial system the tutor presents a stimulus in the form of information and questions, the student responds and the instructor rewards the student when he is correct. The typical classroom differs from the tutorial system in that the student receives more information in the classroom but makes less responses and is rewarded less. For efficient learning this immediate reward is necessary. The more responses a student makes which receive immediate reward, the more rapidly he will learn. Programmed learning is a method of preparing information to provide each student with a stimulus, response, and reinforcement for all information taught. The program is prepared by an expert who breaks the subject into small steps and asks some questions that will test the student's understanding. Three devices used for this are the programmed textbook, the scramble book, and the teaching machine. In the programmed textbook, the student reads the information, constructs his answer, and turns to the following page to check his answer. With the scramble book, the student chooses an already constructed answer. If his choice was correct, he goes directly to the next problem. If wrong, he goes to another page where he finds an explanation of his error. A teaching
machine is any mechanical device which presents one step at a time, provides some method for indicating a response, and shows whether this is correct. More effective learning does occur if the material is programmed rather than presented in lecture or textbook form. Mathematics programs are now available for teaching algebra, geometry, trigonometry, and statistics. Programs in German, Russian, Spanish, and Hebrew are available. There are also programs for teaching grammar, spelling, music, physics, biology, chemistry, and electronics.
Thomas Roy King was born in Selma, Alabama, on June 11, 1934. He attended the local public schools and graduated from Albert G. Parrish High School in 1952. He received his Bachelor of Arts degree from Howard College in Birmingham, Alabama, in 1956 with a major in Speech and Dramatic Arts. The next two years he attended Florida State University in Tallahassee, Florida, where he received a Master of Arts degree in 1958. He held the position of Instructor in Speech and Director of Forensics at Memphis State University, Memphis, Tennessee, from 1958 to 1960. During the years from 1960 to 1963 he studied toward his Doctor of Philosophy degree in the Department of Speech at Louisiana State University. At the present time he is an Instructor in Speech and Director of Debate at Florida State University.
Candidate: Thomas Roy King

Major Field: Speech

Title of Thesis: An Experimental Study of the Effect of Artistic and Non-Artistic Ethos upon the Immediate and Delayed Recall of Information Conveyed in a Speech

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination: