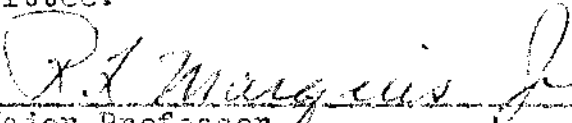
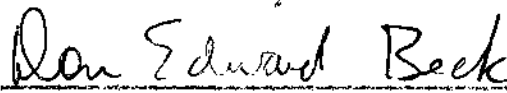


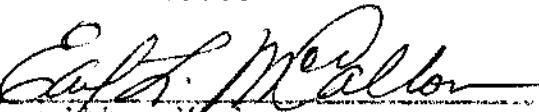
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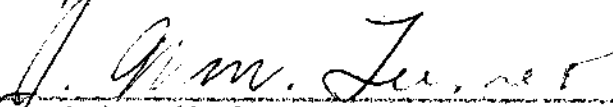
APPROVED:


Graduate Committee:

  
Major Professor

  
Minor Professor

  
Committee Member

  
Committee Member

  
Dean of the School of Education

  
Dean of the Graduate School

A VALIDITY STUDY OF THE PRINCIPLE OF CONGRUITY IN PREDICTING  
ATTITUDE CHANGE OF COLLEGE STUDENTS

DISSERTATION

Presented to the Graduate Council of the  
North Texas State University in Partial  
Fulfillment of the Requirements

For the Degree of

DOCTOR OF EDUCATION

By

Donald W. Olson, B.A., M.Ed.

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## CHAPTER I

### INTRODUCTION

Of the many variables involved in the teaching-learning process, perhaps one of the most influential is the student's attitude structure. When a student enters the classroom for the initial class session of a course, he brings with him an attitude toward that course and toward the course instructor. It is tenable that his subsequent course performance may be significantly affected by his initial attitude toward the subject and the instructor.

The probability of attitude variation toward the different courses and instructors is high. By its nature, a public speaking course is likely to be perceived by the student in a manner quite different from the way he perceives other disciplines. Given the conditions that the subject is a requirement, that the student is not a speech major, and that the performance requirements are unique to his educational experience, it is reasonable that the anticipatory apprehension generated by such a situation will condition the student's attitude toward the course and the instructor to some degree.

If the student's initial attitude toward a public speaking course and toward the course instructor changes in

accordance with predicted principles, then predictions can be made concerning end-of-course attitudes toward both these variables.

Among several constructs that purport to predict attitude change is Osgood and Tannenbaum's (4) congruity theory (i.e., when change in attitude occurs, it always shifts in the direction of greater harmony with the prevailing frame of reference). Previous application of the congruity theory has been made predominantly in short-term public speaking situations. The theory is utilized in this study as a predictor of student attitude change over an extended time. In the main, the theory has been supported. As a model to account for attitudinal shift of students as a group toward their course and instructor, the theory has not been tested.

#### Statement of the Problem

The problem of this study was to determine if the principle of congruity can be used as a reliable predictor of undergraduate students' attitude change toward a required speech course and toward the course instructor between the outset and the end of a semester.

The investigation involved the following subproblems:

1. To determine if the groups' attitude change toward a required speech course and toward the course instructor between the outset and the end of a semester would be in the direction of greater congruity.



2. To determine if the observed amount of groups' attitude change toward a required speech course differs significantly from the predicted amount of attitude change toward a required speech course.

3. To determine if the observed amount of groups' attitude change toward the course instructor differs significantly from the predicted amount of attitude change toward the course instructor.

#### Hypotheses

The basic hypothesis of this study was that group attitude change toward a required speech course and toward the course instructor between the outset and the end of a semester would be in the direction of greater congruity.

The following subhypotheses were tested:

1. Each group's attitude toward the course instructor will change by the end of the semester in the direction of the group's original attitude toward the course.

2. Each group's attitude toward the course will change by the end of the semester in the direction of the group's original attitude toward the course instructor.

3. There will be no significant difference between the observed amount of group attitude change toward a required speech course and the predicted amount of group attitude change toward a required speech course.

4. There will be no significant difference between the

observed amount of group attitude change toward the course instructor and predicted amount of group attitude change toward the course instructor.

### Significance of the Study

In his compilation of research studies testing the principle of congruity, Thompson concluded that

The congruity principle . . . is of great significance. Theoretically it provides a new and promising basis for explaining the results of attempted persuasion, and practically it gives the persuader a useful new viewpoint for planning his efforts (5, pp. 35-36).

Berlo and Gulley suggested that additional information on the generalization potential of the principle of congruity should be of value. They grant, however, that

It is possible that it [principle of congruity] will not hold in all, or even most, speech situations. If the latter is the case, it should prove beneficial to explore systematically the conditions under which it will and will not predict change (2, p. 19).

In a general evaluation of the various theories of attitude change, Insko addressed himself to the neglected problem areas of attitude-change research. Considering the problem of long-term attitudinal and opinion effects of various manipulations, he cautions that "Certainly if most of the manipulations do . . . have only transitory effects, this is a serious indictment of attitude change research" (3, p. 346).

The preceding indictively derived conclusions with respect to congruity theory were instrumental in provoking the present investigation.

The phrase "attempted persuasion," as Thompson (5, p. 36) employed it, refers to a public-speaking setting, whereas, for the present study, the concept is interpreted as the pedagogical interaction between teacher and student, i.e., teaching.

Teaching is viewed essentially as an extended rhetorical process. Rhetoric, in this context, is thought of as any manner or type of verbal or nonverbal communication designed to gain desired responses from the listeners. In the words of the congruity principle, the instructor (speaker) makes positive assertions, verbally and nonverbally, about the course (proposition). Whereas the speech is compact in that the duration is normally not longer than ten to fifteen minutes in an experimental setting, in the case of an academic course of study the rhetorical transaction lasts for an entire semester.

The present study may be significant in providing at least partial answers to the implicit questions derived from the quotations above. The investigation represents a unique application of the congruity model. The principle of congruity is being tested for its validity in predicting attitude shifts of students toward their instructor and toward a required course. Directly associated in the testing of the congruity principle for its validity as a predictor of attitude change over an extended period of time. A search

of the literature has not revealed any other study in which such an approach has been taken.

Because it is sensitive to connotative meaning (emotional feelings) and not restricted to denotative meaning (judgments of approval or disapproval) which characterize the usual attitude measures, the semantic differential technique was used as the attitude assessment device. The semantic differential is typically utilized as the attitude measure in congruity studies and will be discussed in greater detail in Chapter III.

Use of the semantic differential avoids Insko's criticism that

Much attitude change research has relied and does rely on poorly conceived assessment procedures despite the known availability of many sophisticated psychometric techniques (3, p. 345).

Insko did, however, endorse the semantic differential in a subsequent statement, commenting that "with the development of the easily applicable semantic differential technique there is less reason for using more unsophisticated procedures" (3, p. 345).

Of practical significance, perhaps the insight gained from this study will contribute to the development of a technique to account for the attitude variable that is operative in the teaching-learning process.

The findings of this study may suggest an efficient, reliable tool that will help answer the question: What

image does the instructor and the course generate in the student's attitude structure?

#### Definition of Terms

Attitude is defined as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (1, p. 20). Quantitatively, attitude is defined as the mean of ratings on selected evaluative scales determined by a factor analysis of the semantic differential used in the investigation.

Attitude change is quantitatively defined as the difference between the attitude assessed by the pretest and the attitude assessed by the posttest.

Unfavorable attitude is quantitatively defined as a mean Z score of forty-nine or less on selected evaluative scales of the semantic differential used in the investigation.

Favorable attitude is quantitatively defined as a mean Z score of fifty-one or above on selected evaluative scales of the semantic differential used in the investigation.

Neutral attitude is quantitatively defined as a mean Z score of 50 on selected evaluative scales of the semantic differential used in the investigation.

Original attitude is quantitatively defined as the pretest rating of selected evaluative scales of the semantic differential used in the study.

Student is defined as any male or female business administration major enrolled in Speech 110, Business Speaking at North Texas State University for the spring semester of 1968.

The Principle of Congruity is defined as a predictor of attitude change that is stated as "Changes in attitude are always in the direction of increased congruity with the existing frame of reference" (2, p. 10).

Congruity is operationally defined as a scale position of attitude at which the attitude toward one concept is algebraically equal to the scale position of attitude toward the other concept.

Required speech course is defined as a specific course offering of the Speech Department curriculum which must be satisfactorily completed by the student prior to the conferring of his degree.

Course instructor is defined as the teacher of a required speech course.

The outset of a semester is defined as the first class session of the spring semester of 1968.

The end of a semester is defined as the first class session of the fourteenth week of the spring semester of 1968.

Group is defined as a Speech 110, Business Speaking class section.

### Limitations of the Study

In order to verify or discount the hypothesis generated by the problem statement and to affirm or deny the subhypotheses, it appeared desirable and expedient to establish the following limitations:

1. The investigation was limited to undergraduate business administration majors enrolled in Speech 110. Business Speaking at North Texas State University during the spring semester of 1968.
2. The study was limited in time to one academic semester, the spring semester of 1968.
3. The study was limited to the prediction and measurement of attitude change with respect to direction and magnitude of change.

### Sources and Availability of Data

The primary sources of data were the following:

1. The subjects' ratings of their attitudes toward a required speech course and the course instructor recorded on a pretest and posttest of a semantic differential.
2. The subjects' responses to a questionnaire that accompanied the semantic differential. These data concerned their sex, grade classification, academic major, and previous speech training.

### Summary

An attempt has been made in this chapter to state the problem in such a way as to reflect the explicit frame of reference of the study. In order to accept or reject the major hypothesis and subhypotheses, certain limitations were established and the more important terms and concepts to be used in the study were defined. The significance of the study was discussed in terms of its theoretical and practical potential.

Chapter II is a review of the literature pertinent to the congruity principle and to the major variables of concern in this investigation.

Chapter III constitutes a description of the subjects, a discussion of the measurement instrument and the rationale for its use, and an explanation of the procedures employed in securing and treating the data.

Chapter IV is comprised of a presentation analysis and discussion of the results.

Chapter V contains the summary, conclusions, and recommendations for further research.



## CHAPTER BIBLIOGRAPHY

1. Allport, G. W., "Attitudes in the History of Social Psychology," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penguin Books, Inc., 1966.
2. Berlo, David K. and Halbert E. Gullen, "Some Determinants of the Effect of Oral Communications in Producing Attitude Change and Learning," Speech Monographs, XXIV (March, 1957), 10-20.
3. Insko, Chester A., Theories of Attitude Change, New York, Appleton-Century-Crofts, 1967.
4. Osgood, Charles E. and Percy H. Tannenbaum, "The Principle of Congruity in the Prediction of Attitude Change," Psychological Review, LXII (March, 1955), 42-55.
5. Thompson, Wayne N., Quantitative Research in Public Address and Communication, New York, Random House, 1967.

## CHAPTER II

### SURVEY OF THE LITERATURE

Perhaps few words in the English language have undergone a more dramatic metamorphosis, both denotatively and connotatively, than the noun, "attitude." A little over a hundred years ago the term "attitude" was used exclusively as a reference to a person's posture (55). It is quite true that the word can and is used today in the same context; however, "attitude" is now employed more in regard to the psychological orientation of a person.

Fortunately, a person finds little communication difficulty involved in speaking of his "attitude" toward politics, his work, or his boss. "Attitude," as well as "intelligence," "personality," and "role" have been taken by social science directly from the language of everyday use (55).

That the social scientist does not have to commence with a laborious procedure of definition before he can discuss attitude most certainly does not imply that there are no problems in defining the concept. No small amount of controversy has surrounded the task of defining "attitude" (55).

Since 1918, when Thomas and Znanieki (107) were credited with instituting the concept as a permanent aspect of

sociological writing, the term attitude has been defined in numerous ways (36, 113, 33, 28, 112).

Among the conceptions of "attitude" produced in the past fifty years, it is Allport's influential definition rendered in 1935 that Newcomb (81) found necessary to use in providing a concise, authoritative statement on the usage of the concept. Because of its stature among the authorities, Allport's (56) definition of "attitude" was given in Chapter I of this study under "Definition of Terms."

The concept of attitude has evolved as a truly cross-discipline construct. It has emerged as a catalyst for discussion and research among psychologists, sociologists, communicologists, and educators (56).

Allport's own words suggest the priority given the attitude concept:

The attitude unit has been the primary building stone in the edifice of social psychology. . . . In recent years, learning theorists, field theorists, phenomenologists have attempted to dislodge it. But it is questionable whether their combined efforts can do more than refine the concept for future use. . . . The doctrine of attitude . . . is necessary. Without some such concept, social psychologists could not work in the fields of public opinion, national character, or institutional behavior--to mention only a few areas; nor could they characterize the mental organization of social man. The term itself may not be indispensable, but what it stands for it (56, p. 20).

When a researcher undertakes a problem that is attitude-centered, his initial task is to orient himself in a maze

of research literature that has accumulated for over a hundred years, burgeoned in almost geometric proportions, and crossed no less than four discipline lines.

When an investigator takes a theoretical model born and reared in one environment and employs it in another, he must seek to explain the adjustment problems that consequentially follow. The present study seeks to do that.

A survey of the related literature should take into account the two problems suggested in the preceding two paragraphs; therefore, the rationale for this chapter is reflected in the organizational chronology.

The first section positions the theoretical model used in this study with respect to the picture of attitude research per se. The second section is comprised of an explanation of the congruity model accompanied by a survey of the direct tests of the theory. A compilation of attitude change research in pedagogy constitutes the third section of the chapter.

#### Research Related to the Attitude Concept

The wealth of research data bearing on the concept of attitude may be categorized in terms of four areas:

1. Research into the origins and development of attitudes,
2. Substantive research into attitude content,

3. Studies of the relation between attitudes and behavior,

4. Investigations of attitude change.

#### Origins and Development of Attitudes

Empirical research relative to the origins and development, or formation, of attitudes is not plentiful (54). Several different approaches have been taken in attempts to isolate the sources of attitudes.

Sanford (92) interpreted attitudinal structure as being deeply rooted in the organizational development of the personality itself.

In a summary and appraisal of Jean Piaget's theory and research in regard to the development of moral attitudes, Bloom (14) pointed out that Piaget's theory is one of "stages" in development, but also one which strongly emphasized the social determinants of ethical attitudes and conscience.

"Changes in American society and culture seem to be accompanied by changes in individual personality structure as well as by changes of opinion and attitude" (40, pp. 134-135). Such was the concluding statement by Freedman in his report of a study demonstrating differences in attitudes and values between separate age groups.

### Research into Attitude Content

With respect to the investigation into attitude content, the articles referred to in this section are representative of the social science literature in the area. Aspects of attitude on which research has been focused include attitudes and ideas about foreigners (48), maternal attitudes toward child rearing (71), political attitudes (78), prejudice (10), attitudes revealed under conditions of unemployment (57), and the relationship of certain attitudes with religious behavior (6). The aim of the preceding study has been at the attitudes themselves.

### Relationship Between Attitudes and Behavior

The third phase of attitude research centers on behavior. From the relatively small amount of empirical data to date concerning the relationship between attitudes and behavior, there is some justification of the criticism leveled at the study of verbally expressed attitudes in themselves (55). The major argument has been that it is not known to what extent attitudes may be translated into relevant behavior.

In light of the criticism, the plea from attitude researchers has been to build more theoretical models that incorporate more of the complexities of relationships between attitudes and behavior, not to dissolve attitude study (56).

There are a few studies that have attempted to investigate the critical relationship between attitudes and behavior.

DeFleur and Westie (32) reported an investigation of what was called "attitude salience," or an individual's readiness to translate his attitude into overt behavior in specific social contexts.

Janis and King (59) examined experimentally the influence of behavior on attitudes. Their hypothesis that "saying is believing" was supported, and it reversed what is normally assumed to be the casual direction of the relationship.

Gorden (43) demonstrated that by experimental intervention in a natural group setting and with the illumination of individual case study materials, a person's public expression of his private opinions will be influenced by his definition of the social situation in which he finds himself.

#### Research into Attitude Change

The fourth category of attitude research has focused on change and the related topics of social influence and persuasibility. It has been attitude-change theory and associated investigation that have been of uppermost interest during the last two decades. (56).

It was Hovland et al. (49) who initiated and directed the first vital program of empirical research of persuasion and attitude change. Most of Hovland's work dealt with specifying the effects of a communication with attention to

(1) the communicator, (2) the communication itself, and (3) the audience who hears the communication.

With respect to the "communicator," several studies (50, 51, 64, 114) generated from Hovland's program tend to support the following conclusions: (1) Communications attributed to low-credibility sources tended to be considered more biased and unfair in presentation than identical ones attributed to high-credibility sources. (2) High-credibility sources had a substantially greater immediate effect on the audience's opinions than low-credibility sources. (3) Variations in source credibility seem to influence primarily the audience's motivation to accept the conclusions advocated. (4) Positive effect of the high-credibility sources and negative effect of the low-credibility sources tended to be extinguished after a period of several weeks.

A sample of the studies associated with "the communication" itself has involved ways in which symbols operate as effective incentives to believe the speaker's message (58, 64, 50). The conclusions to be drawn from the data are (1) use of strong fear appeals will interfere with the overall effectiveness of a persuasive message if such appeals evoke high emotional tension without providing for reassurance, (2) the retention of attitude change produced under high salience is likely to be superior, and (3) it is generally more effective to state the conclusion explicitly than to rely upon the audience to draw its own conclusions.



When the audience is exposed to both sides of an argument and given a basis for ignoring or discounting opposing arguments, the audience tends to become "inoculated" against subsequent messages that advocate a contrary point of view (70, 60).

A view of the research invested in the effects of a communication on the audience reflects the proliferation of theoretical model-building that has spawned the bulk of the findings. Insko (53) has compiled a volume explaining and evaluating no less than fourteen theories of attitude change.

During the decades of the twenties and thirties, empirical research on attitudes was conducted more or less in a theoretical vacuum. Interest in attitude structure was heightened greatly in the post-World War II years, and several theoretical models emerged (56).

An example of parallel theoretical development has been the family of theories which have been organized around the principle of consistence in a cognitive framework (56). Three separate models can be examined from such a viewpoint. Common to the concepts of balance, dissonance, and congruity is the notion that thoughts, beliefs, attitudes, and behavior tend to organize themselves in meaningful and sensible ways (116). In addition, there is agreement that it is disequilibrium that initiates attitude change and that the change operates in the direction of equilibrium restoration

(22, 53, 116). Stated in more familiar terms,

Since balance is the preferred psychological state, any perception of imbalance will be tension-producing, and the individual will subsequently act--covertly, overtly, or both--in a manner calculated to restore cognitive balance (75, p. 377).

Since the model under scrutiny (congruity) belongs to the "consistency" family, its theoretical "relatives" have been given brief consideration in the following paragraphs.

The first formulation of consistency has been credited to Heider (47), who was concerned primarily with the way relations among persons involving some impersonal entity are attitudinally experienced by the individual. Heider argued that a relation may be either positive or negative; degrees of liking cannot be represented. The fundamental assumption of balance theory is that an unbalanced state produces tension and subsequently generates forces to restore balance (47, 53, 22).

The fundamental precept of balance theory was tested by Jordon (61), who found some support for the hypothesis. It will be remembered that Heider's concept allowed for either a balanced or unbalanced state. Cartwright and Harary (27) and Morrissette (77) broadened the definition of balance and treated it as a matter of degree, ranging from zero to one, and the same researchers extended the notion to any number of entities.

Newcomb (81) took Heider's idea of balance out of one person's head and applied it to communication among people. "Strain toward symmetry" was the name given to Newcomb's modification. According to its author, the strain toward symmetry leads to compatibility of attitudes of two people (A and B) oriented toward an object (X). The strain influences communication between A and B in order to bring their attitudes toward X into harmony (81).

Studies by Newcomb (83) and Burdick and Burnes (24) revealed two tentative conclusions respectively: (1) There was a tendency for those who were attracted to one another to agree on many matters, including the way they perceived their own selves and their ideal selves and their attractions for other group members. (2) Subjects who liked the experimenter tended to change their attitudes toward greater agreement with his, and those who disliked him changed their attitudes toward greater disagreement.

Festinger's theory of cognitive dissonance has fostered what is perhaps the largest systematic body of data of any change model (116). Several writers have discussed the dissonance theory (53, 22, 116), but it is Festinger (37) who has provided the most definitive treatment of the model.

The dissonance principle holds that two elements of knowledge "are in dissonant relation if, considering these two alone, the obverse of one element would follow from the

other" (37, p. 13). Festinger argues that

Dissonance, being psychologically uncomfortable, will motivate the person to try to reduce dissonance and achieve consonance. . . . In addition, to trying to reduce it, the person will actively avoid situations and information which would likely increase the dissonance (37, p. 3).

The paramount hypothesis has prompted three main predictions. First, it is predicted that

All decisions or choices result in dissonance to the extent that the alternative not chosen contains positive features which make it attractive also, and the alternative chosen contains features which might have resulted in rejecting it (116, p. 290).

Ehrlick et al. (35) found that new car owners noticed and read advertisements about the cars they had recently bought more than advertisements about other cars.

Brehm's (19) study not only upheld the dissonance hypothesis, but it was also confirmed that the pressure to reduce dissonance varied directly with the extent of dissonance.

The second prediction that came from the dissonance principle deals with cases where the person actually makes a judgment or expresses an opinion contrary to his own as a result of a promised reward or threat. In such situations, dissonance exists between the knowledge of the act of the person and his privately held beliefs (116).

Brehm (18) and Festinger and Carlsmith (38) confirmed the prediction under conditions of positive incentives.

Aronson and Mills (7) found support for the dissonance point of view when they tested the effects of negative incentive.

The third prediction registered by the dissonance construct deals with exposure to information. This prediction is that individuals will seek out information reducing dissonance and avoid information increasing it (116).

The Ehrlick et al. (35) study is supportive of the prediction as reported above. Mills, Aronson, and Robinson (76) gave college students a choice between an objective and an essay examination. After making their decision, the subjects were given articles about examinations to read if they wished. To vary dissonance intensity, half of the subjects were told that the examination would count 70 per cent of their final grade; half were told the examination would count 5 per cent. There was a preference for reading articles containing positive information about the chosen type of examination; however, no significant selective effects were found when the articles presented arguments against the given type of examination. It was also found that the degree of importance attached to the examination made no difference in effects or dissonance.

Zajonc (116) is of the opinion that

In general his [Festinger's] theory is rather successful in organizing a diverse body of empirical knowledge by means of a limited number of fairly reasonable assumptions. Moreover, from these reasonable assumptions dissonance theory generated several nontrivial and nonobvious consequences (116, p. 295).

The "nontrivial" and "nonobvious" ramifications mentioned above were made evident in studies by Festinger, Riecken, and Schachter (39) and Brehm (17). Both investigations yielded evidence that the negative relationship between the magnitude of the incentive and attraction of the object of false testimony is not obvious and certainly not trivial.

The third consistency model is the congruity theory. Since it is the theoretical foundation for the present study, it is discussed in detail in the next section of this chapter.

#### The Principle of Congruity

It was out of their experimental work in semantics at the Institute of Communications Research at the University of Illinois, that Osgood et al. (86) developed a general principle known as the principle of congruity, which has occupied a central position in their theoretical model of attitude change.

According to Osgood and Tannenbaum, three of the most significant variables functioning in attitude change are as follows:

- (a) existing attitude toward the source of a message, (b) existing attitude toward the concept evaluated by the source, and (c) the nature of the evaluating assertion which relates source and concept in the message (87, p. 42).

The underpinning principle of congruity theory deals with the three variables listed above in generating predictions with respect to direction and magnitude of attitude change

for both the message sources and the concepts they evaluate.

The principle of congruity operative in human thinking has been stated by its authors as follows: "Changes in evaluation are always in the direction of increased congruity with the existing frame of reference" (87, p. 43).

An explanation of the congruity principle normally involves answering three questions: (1) When does the issue of congruity arise? (2) What directions of attitude change are congruent? (3) How much pressure is generated by incongruity and how is it distributed between the objects of judgment?

Each individual entertains attitudes toward a vast number of objects. It is possible to have varying attitudes toward various concepts without any felt incongruity or disequilibrium or any pressure toward attitude change, so long as no association among the objects of judgments is made. The issue of congruity arises whenever a message is received that joins two objects of judgment by way of an assertion (87). For example, a person may have a favorable attitude toward President Johnson and an unfavorable attitude toward the repeal of the right-to-work law. The principle of congruity means that when the individual reads of or hears Johnson (source) make a speech favoring (nature of the assertion) repeal of the right-to-work law (concept), there

will be pressure for the individual to shift his attitudes to a more congruous position.

With respect to the question of directions of congruence and incongruence, Osgood and Tannenbaum suggested that

To predict the direction of attitude change from this general principle it is necessary to take into account simultaneously the existing attitudes toward each of the objects of judgment prior to the reception of the message and the nature of the assertion which is embodied in the message (87, p. 44).

Referring to the previous example, in order to predict the individual's attitude toward President Johnson and toward the repeal of the right-to-work law, it would be necessary to assess the person's attitude toward each object of judgment prior to his exposure to the speech of endorsement.

When attitudes toward both objects of judgment are polarized, the nature of the assertion would determine congruence or incongruence (87). To the person in the illustration, for Johnson (+) to favor the right-to-work law (+) would be congruous with the person's existing frame of reference. If, however, Walter Reuther (-) came out in favor of the right-to-work law (+), then attitudinal incongruity would result. To simplify, sources that are admired should always advocate ideas that are admired and denounce ideas that are disliked, and vice versa.

In circumstances indicating a polarized attitude toward one object of judgment and a neutral attitude toward the other object, the attitudinally neutral object would absorb



the pressure toward congruity. Direction of attitude shift would be dictated by the nature of the assertion rendered by the polarized source.

When both objects of judgment are neutral, there is no question of congruity between them, and attitudinal change is determined by the nature of the assertion (87).

A general postulate governing the direction of congruence has been offered to hold for any object of judgment, source, or concept, and any type of assertion:

Whenever one object of judgment is associated with another by an assertion, its congruent position along the evaluative dimension is always equal in degrees of polarization . . . to the other object of judgment and in either the same (positive assertion) or opposite (negative assertion) evaluative direction (87, p. 45).

The question of magnitude and distribution of pressure toward congruity will be considered next. With knowledge of the existing locations of maximum congruence under the conditions given in the quotation above, it becomes possible to state the amount and application of the total pressure toward congruity. Stated formally,

The total available pressure toward congruity . . . for a given object of judgment associated with another by an assertion is equal to the difference, in attitude scale units, between its existing location and its location of maximum congruence along the evaluative dimension; the sign of this pressure is positive (+) when the location of congruence is more favorable than the existing location and negative (-) when the location of congruence is less favorable than the existing location (87, p. 46).

The numerical computations involved in determining total pressure toward congruence are founded upon the assumption of a seven-step scale with three degrees of polarization possible in each evaluative direction.

The third generalization associated with the principle of congruity involved the empirically derived conclusion that weakly held or less intense attitudes are more susceptible to change than strongly held or more intense ones (101, 87, 13, 93, 9). The stated principle has embodied this finding in a manner which generated more detailed predictions.

In terms of producing attitude change, the total pressure toward congruity is distributed between the objects of judgment associated by an assertion in inverse proportion to their separate degrees of polarization (87, p. 46).

In other words, less polarized objects of judgment, when associated with relatively more polarized objects of judgment, absorb proportionately greater amounts of pressure toward congruity, and, therefore, change more.

The prediction procedure as stated above is predicated upon complete credulity of the message on the part of the receiver. Such a condition in the case of incongruous messages would be the exception rather than the rule. An individual will not be prone to shift his attitude if he doubts the credibility of the statement. The prediction-making function of the theory, therefore, must account for the credulity variable.

The amount of incredulity produced when one object of judgment is associated with another by an assertion is a positively accelerated function of the amount of incongruity which exists and operates to decrease attitude change, completely eliminating change when maximal (87, p. 47).

Since congruity represents the expected way of the world, it would be reasonable to suppose that disbelief or incredulity would increase as incongruity increases. The incredulity correction is always subtracted from the change that would otherwise be predicted. Brown explained the "positively accelerated function" phrase by stating that "it [incredulity] grows larger at an increasing rate as the incongruity rises, and ultimately, . . . equals and so cancels out the force toward change" (22, p. 25).

Congruity theory is bolstered by a second ad hoc correction, the assertion constant. As pointed out above, change in both source and concept occurs as a result of linkage via an assertion. Common sense, however, suggests that the object of an assertion would be more likely to be affected than would be the source of the assertion. The matter is accounted for

. . . by adding a constant, the assertion constant, to the predicted change for the object of the assertion or the concept. The constant ( $\pm A$ ) is positive for associative assertions and negative for dissociative assertions and has been empirically determined by Osgood and Tannenbaun to be .17 in units of the 7-step semantic differential scale (53, pp. 118, 119).

The section to follow is comprised of a survey of the studies which have tested the prediction . . .

principle of congruity. Congruity studies have tended toward one of two groups, depending upon the research design. One group has involved written material as the vehicle for the source's assertions about a concept; the second group typically has involved an oral message (usually a tape recording) as the means of conveying the source's assertions. The first series of studies to be reported belong to the written-material group.

Perhaps the first and most thorough test of the congruity hypothesis was carved out by one of its authors, Tannenbaum (101). His problem was to provide a systematic study of attitude shift toward both the concept and the source of a message as a function of the original attitudes of the recipient of the message toward both these elements. It was demonstrated that both variables are significant in determining the amount of attitude change, both with respect to concept-shift and to source-shift. Secondly, it was also shown that the interaction between the two variables is a significant factor. Third, it was found that the susceptibility to change is inversely proportional to the intensity of the initial attitude (101).

In a study by Kerrick (65), the congruity model was tested for its capability to predict concept change under the influence of both relevant and nonrelevant sources. The reported findings were that for all sources and all concepts,

the congruity model predicted significantly better for the relevant than for the nonrelevant situations.

Kerrick (66), in a follow-up study, investigated the ability of the congruity model to predict the evaluation of captioned news pictures based on independent ratings of captions and news pictures. The findings revealed that of the ten predicted shifts in evaluation, nine were in the directions predicted by the uncorrected congruity formulas.

The same researcher (67) studied the effects of differing instructional sets upon attitude change, with the result that an uninformed group changed in the advocated directions significantly more than did an informed group. In six out of six instances (source and concept on three separate issues) the congruity predictions were in the correct direction for the uninformed group and in the incorrect direction for the informed group.

According to the congruity model, when a concept shift is positive, the source making a negative assertion should change in a negative direction; when a concept changes in a negative direction, the source with a positive assertion toward that concept should change in a negative direction. The research of Tannenbaun and Gengel (103) did not substantiate the theory, since all changes were in a positive direction. Tannenbaum and Gengel argued that the insignificant negative changes could have been the result of a

generalized positive perception of all the sources after the subjects had been exposed to the assertion message (103).

Tannenbaum (102) undertook further study of the generalization phenomena and found that, not only did attitude change generalize from a manipulated concept to a linked source, but also from the source to an additional linked concept.

Fishbein (108) developed a summation formula for congruity predictions and subsequently expanded the Osgood and Tannenbaum formulas so as to include four, not just two, judgment objects. Operating under this modification, Triandis and Fishbein (108) investigated the adequacy of the congruity model to predict the evaluations of composite stimuli. For both the American and Greek subjects, it was found that the Fishbein predictions correlated significantly higher with obtained ratings than did the congruity predictions. Similar results were obtained by Anderson and Fishbein (3) in subsequent research.

Fishbein and Hunter (41) investigated the effect of increasing amounts of information upon the evaluation of a stimulus person. The results were consistent with the summation point of view, rather than the congruity postulates. Anderson (4), using the Fishbein and Hunter (41) study as a point of departure, explained how averaging formulation might account for the summation effect.

Tannenbaum, Macaulay, and Norris (104) and Tannenbaum and Norris (105) examined the effectiveness of the principle

of congruity to reduce potential negative attitude shift toward a concept after being the target of a strong negative assertion by a favorable source. Both studies supported the contention that prior strengthening of the concept tended to significantly reduce persuasion effects.

Stachowiak (95) and Stachowiak and Moss (96) measured the effectiveness of influencing attitudes toward Negroes through the medium of a hypnotically administered message. Predictions generated by the congruity principle held up well with respect to direction of attitude change, but insufficiencies were evident with regard to predictions of the magnitude of change.

With the exception of four investigations in which the assertions were perceptual groupings of stimuli, the research surveyed in this section has been supportive of the congruity predictions.

In the section to follow, attention is directed to the studies which have emanated from the fields of public address and communication, wherein the influencing attempt was oral rather than written.

Berlo and Gulley (9) tested the congruity model in a less restricted context than did Tannenbaum (101). Applying the prediction hypothesis in a speaker-proposition context, the researchers were interested in both direction of change and magnitude of change. Of the 174 predictions made with

respect to change toward the speaker, 117 (67 per cent) were verified. For the proposition, 112 (64 per cent) were confirmed. In both situations, the number of correct predictions was significantly greater than chance. Significant product-moment correlations between predicted and observed posttest scores were obtained, upholding the magnitude postulate (9).

Bettinghaus reported that "listeners did tend to balance their perceptions of the elements in the oral communication situation. Shifts in attitude toward the speaker and toward the speech topic were such as to produce congruous attitudinal structures" (12, p. 142).

In a later study, Bettinghaus confirmed three hypotheses of the general congruity hypothesis that "individuals will attempt to balance their perceptions into a cognitively stable structure" (11, p. 103).

#### Attitude Research in Pedagogy

A survey of the literature relating to attitude research in the field of education has revealed no perceptible organizational pattern. There has been no apparent systematic investigation of attitude and attitude change stemming from any theoretical model. The degree of sophistication in attitude-theory building that has characterized social psychology has not been adapted to the classroom circumstance.



It was not until 1938, when Nelson (80) conducted what may be considered a pioneering attempt in the attitudinal field, that attention in the form of research was directed at the students' attitudes.

That knowledge of student attitude is an important variable in the teaching-learning process has been verbalized by many educators. Katz characterizes the nature of such commentary:

The students' individual evaluations of the entering teacher express a wide range of attitudes: from seeing the teacher as a representative of reality to seeing him as a representative of unreality, with the corresponding attitudes to his subject matter and his ways of presenting it. . . . It would be useful to know more about how this comes about which also would further enable teachers to have this process assume beneficial forms (62, p. 384).

A variety of attempts have been made to measure students' attitudes toward an even wider array of topics relating to the academic process.

#### Student Attitude Toward His Professor

Much of the attitude-assessment work undertaken has been conducted to discover what image the professor projects to the student (52, 69, 85, 94, 100).

An important dimension of the teacher image quite obviously stems from the students' perception of the instructor's functioning in the classroom. Remmers's work at Purdue was the first exhaustive approach to the task of isolating those

characteristics that comprise the students' cognitive framework for rating his instructors (90). Guthrie (46) and Wilson (115) were among the early investigators involved with student opinion of teachers.

A number of studies (5, 30, 34, 42, 74, 98, 99, 110), all except the Van Keuren and Lease (110) offering being objective investigations, were designed to identify the factors undergirding student evaluation of his instructor. Perhaps the most sophisticated and thorough of such research ventures was Ryan's (91) teacher-characteristic study.

In each of the investigations cited above, "attitude" was only one of several varied factors that emerged, and was given no other consideration than being a component of the total mental set involved in student rating of teachers.

#### Student Attitude Toward Subject Areas

A number of research studies (15, 23, 68, 84, 97) were among the first attempts to investigate student attitudes in the various disciplines. "Attitude" was restricted to the conservatism-liberalism dimension in these studies, with the general conclusion that, with some consistency, students in certain fields tend toward liberal views; other students in other disciplines lean toward conservative positions. Jacob (54) concluded that no differences exist.

Attitudes toward subjects in the pure sciences have been investigated by Perrodin (89), Anderson (2), and

Vitrogron (111). Respective findings were that elementary school children generally have a favorable attitude toward science in grades four through six, but grow less favorable by grade eight; gifted students prefer physics and chemistry. Attitudinal components were found from which to develop an attitude scale for measurement of high school students' attitudes toward science.

#### Attitude Measuring Instruments Used in Pedagogical Research

With respect to the attitude-measurement instruments employed in pedagogical research, variety appears to be the trend rather than any concentrated effort toward refinement of the devices. Exceptions to this observation are the Remmers (90) and Ryans (91) studies.

Prior to 1960, when the test manual was published, the Purdue Rating Scale for Instruction had been used in twenty-two studies, which were instrumental in validating the test and establishing norms. Pace, however, reported that

Useful as the scales are, even in their present form, it is obvious that little or nothing has been done over the past 12 to 15 years to improve their content, increase their discriminating power, or provide up-to-date norms. Moreover, the varied and changing patterns of college instruction . . . may rapidly make the Purdue scales obsolete for many instructors and courses (88, p. 951).

Several investigations (106, 26, 20, 29) have included the Minnesota Teacher Attitude Inventory as the measurement instrument. As suggested by the title, this scale is

adapted to education students, particularly at the practice-teaching stage of training. Teigland's (106) findings indicated that factors other than actual attitudes may be influencing the way individuals respond to the MTAI.

Other instrumentation used in pedagogical attitude research has been the Q-Sort (21), School Opinion Survey (109), Likert-Type (79), and some limited use of a semantic differential (73, 72, 8, 1).

With the exception of the semantic differential, the attitude-measurement tools noted in the research have been denotative in nature. That is, the tests call for surface judgments of various items, with the assumption following that it is "attitude" that is assessed. The semantic differential (discussed at length in Chapter III) purports to measure psychological, *i.e.*, connotative meaning, of which attitude is but one dimension (86).

#### Attitude Change in Pedagogical Research

Pedagogical research devoted to the measurement of attitude change can be divided into three broad categories: (1) measurement of changes in self-concept, (2) assessment of attitude change toward others, and (3) attitude change toward subject matter, courses, and other related attitudinal objects.

Attitude change occurring with respect to self-concept was investigated by McCroskey (73). His study revealed

that a basic speech course served to improve students' self-concept as speakers. Brooks and Platz (21) found similar results, using the Q-Sort projective technique. McCallon (72) discovered elementary school children's attitude shifts to be toward greater harmony between actual and perceived self-image.

Attitude modification toward others has been researched by a number of educators. Brim (20) used the MTAI to discover that a teacher-education program is in part responsible for a shift of attitude toward children by undergraduate students involved.

Teigland (106) found a significant positive correlation between positive attitude change, increase on deference scale and higher course grades. Barclay and Thumin (8) also found a relationship between attitude toward others and general perception of all personality traits.

Findings by Costin and Kerr (29), Greenberg (44), Guerin and McKeand (45), and Abbatiello (1) tended to support the thesis that attitude change is essentially and consistently related to information gain and learning.

Attitude-change studies by Calder (25), Dawson (31), and Neidt (79) appear to suggest that attitudes toward subject-matter and toward the course itself undergo changes. To conclude, however, that the subject-matter or the course, per se, caused the attitudinal shifts would be premature and vulnerable to serious analysis.

Based upon the preceding cross-sectional review of attitude and attitude-change research bearing on the teaching-learning process, one overriding observation seems tenable. Research into the phenomena of attitude change apparently has not been fostered nor guided by any of the established theoretical models of attitude change.

The present investigation can be viewed as an exploratory venture aimed at turning the seemingly directionless attitude research in pedagogy onto a convergent course with the empirically tested attitude-change models of social psychology.

#### Summary

The rationale developed for the preceding survey of literature was implemented through a three-phase organizational plan:

(1) The congruity theory of attitude change was oriented within the framework of attitude research per se, (2) the congruity theory itself was explained in considerable detail and accompanied by a review of the investigations testing the theory, and (3) the status of attitude research associated with the teaching-learning process was observed by reviewing a representative sampling of the widely divergent studies that appear in the journals.

Chapter III is devoted to a description of the methods and procedures for collecting and treating the data.

## CHAPTER BIBLIOGRAPHY

1. Abbatiello, Aurelius A., "An Objective Evaluation of Attitude Change in Training," Training and Development Journal, XXI (November, 1967), 23-34.
2. Anderson, John E., Jr. and Melvin C. Neeley, "Attitude of Science Camp Students Towards Various Sciences," Science Education, LI (April, 1967), 273-275.
3. Anderson, Lynn R. and Martin Fishbein, "Predictions of Attitude from the Number, Strength, and Evaluative Aspects of Beliefs about the Attitude Object," Journal of Personality and Social Psychology, II (September, 1965), 437-443.
4. Anderson, Norman H., "Averaging Versus Adding as a Stimulus Combination Rule in Impression Formation," Journal of Experimental Psychology, LXX (October, 1965), 394-400.
5. Anikeeff, Alixis M., "Factors Affecting Student Evaluation of College Faculty Members," Journal of Applied Psychology, XXXVII (December, 1953), 458-460.
6. Argyle, M., "The Attitudes of Religious People," Attitudes; Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penguin Books, Inc., 1966.
7. Aronson, Elliot and Judson Mills, "The Effect of Severity of Initiation on Liking for a Group," Journal of Abnormal and Social Psychology, LIX (September, 1959), 177-181.
8. Barclay, A. and Frederick J. Thumin, "A Modified Semantic Differential Approach to Attitude Assessment," Journal of Clinical Psychology, XIX (July, 1963), 376-378.
9. Berlo, David K. and Halbert E. Gulley, "Some Determinants of the Effect of Oral Communications in Producing Attitude Change and Learning," Speech Monographs, XXIV (March, 1957), 10-20.
10. Bettelheim, B. and M. Janowitz, "Prejudice," Attitudes; Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penguin Books, Inc., 1966.

11. Bettinghaus, Erwin P., "Cognitive Balance and Development of Meaning," Journal of Communication, XIII (June, 1963), 94-105.
12. \_\_\_\_\_, "The Operation of Congruity in an Oral Communication Situation," Speech Monographs, XXVIII (August, 1961), 131-142.
13. Birch, Herbert G., "The Effect of Socially Disapproved Labeling Upon a Well-Structured Attitude," Journal of Abnormal and Social Psychology, XL (July, 1945), 301-310.
14. Bloom, L., "A Reappraisal of Piaget's Theory of Moral Judgment," Journal of Genetic Psychology, XCV (September, 1959), 3-12.
15. Boldt, W. J. and J. B. Straud, "Changes in Attitudes of College Students," Journal of Educational Psychology, XXV (November, 1934), 611-619.
16. Bowers, John Waite, "The Congruity Principle and Oral Communication," Central States Speech Journal, XIV (May, 1963), 88-91.
17. Brehm, Jack W., "Attitudinal Consequences of Commitment to Unpleasant Behavior," Journal of Abnormal and Social Psychology, LX (November, 1960), 379-383.
18. \_\_\_\_\_, "Increasing Cognitive Dissonance by a Fait Accompli," Journal of Abnormal and Social Psychology, LVIII (May, 1959), 379-382.
19. \_\_\_\_\_, "Post-Decision Changes in the Desirability of Alternatives," Journal of Abnormal and Social Psychology, LII (May, 1956), 384-389.
20. Brim, Burl J., "Attitude Changes in Teacher Education Students," The Journal of Educational Research, LIX (July, August, 1966), 441-445.
21. Brooks, William D. and Sarah M. Platz, "The Effects of Speech Training upon Self-Concept as a Communicator," The Speech Teacher, XVII (January, 1968), 44-49.
22. Brown, Roger, "Models of Attitude Change," New Directions in Psychology, New York, Holt, Rinehart, and Winston, 1962.



23. Bugelski, Richard and Olive Lester, "Changes in Attitudes of College Students During Their College Course and After Graduation," Journal of Social Psychology, XII (November, 1940), 319-332.
24. Burdick, Harry A. and Alan J. Burnes, "A Test of 'Strain Toward Symmetry' Theories," Journal of Abnormal and Social Psychology, LVII (November, 1958), 367-369.
25. Calder, Clarence R., Jr., "Self-Directed Reading Materials," The Reading Teacher, XXI (December, 1967), 248-252.
26. Campbell, Donald E., "Dimensional Attitude Changes of Student Teachers," The Journal of Educational Research, LXI (December, 1967), 160-162.
27. Cartwright, Darwin and Frank Harary, "Structural Balance: A Generalization of Heider's Theory," Psychological Review, LXIII (September, 1956), 277-293.
28. Clarke, H. M., "Conscious Attitudes," American Journal of Psychology, XXII (April, 1911), 214-249.
29. Costin, Frank and William D. Kerr, "Effects of a Mental Hygiene Course on Graduate Education Students' Attitudes and Opinions Concerning Mental Illness," The Journal of Educational Research, LX (September, 1966), 35-38.
30. Crannell, C. W., "A Preliminary Attempt to Identify the Factors in Student-Instructor Evaluation," The Journal of Psychology, XXXVI (October, 1953), 417-422.
31. Dawson, George G., "Changing Students' Attitudes," Improving College and University Teaching, XIV (August, 1966), 200-203.
32. DeFleur, M. L. and F. R. Westie, "Verbal Attitudes and Overt Acts," American Sociological Review, XXIII (December, 1958), 667-673.
33. Droba, D. D., "The Nature of Attitude," Journal of Social Psychology, IV (November, 1933), 444-463.
34. Echandia, Paul P., "A Methodological Study and Factor Analytic Validation of Forced-Choice Performance Ratings of College Accounting Instructors," unpublished doctoral dissertation, Department of Education, New York University, New York City, 1964, as abstracted in Dissertation Abstracts, XXV (January, 1965), 2605.

35. Ehroich, Danuta, Isaiah Guttman, Peter Schonbach, and Judson Mills, "Post-Decision Exposure to Relevant Information," Journal of Abnormal and Social Psychology, LIV (January, 1957), 98-102.
36. Faris, Ellsworth, "The Concept of Social Attitudes," Journal of Applied Sociology, IX (May-June, 1925), 404-409.
37. Festinger, Leon, A Theory of Cognitive Dissonance, Evanston, Illinois, Row, Petterson, 1957.
38. \_\_\_\_\_ and James M. Carlsmith, "Cognitive Consequences of Forced Compliance," Journal of Abnormal and Social Psychology, LVIII (March, 1959), 203-210.
39. \_\_\_\_\_, J. Riecken, and S. Schachter, When Prophecy Fails, Minneapolis, University of Minnesota Press, 1956.
40. Freedman, Mervin B., "Changes in Six Decades of Some Attitudes and Values Held by Educated Women," Journal of Social Issues, XVII (No. 1, 1961), 19-28.
41. Fishbein, Martin and Ronda Hunter, "Summation Versus Balance in Attitude Organization and Change," Journal of Abnormal and Social Psychology, LXIX (November, 1964), 505-510.
42. Garber, Herbert, "Certain Factors Underlying the Relationship between Course Grades and Student Judgments of College Teachers," unpublished doctoral dissertation, Department of Education, University of Connecticut, Storrs, Connecticut, 1965, as abstracted in Dissertation Abstracts, XXVI (May, 1966), 6512.
43. Gorden, Raymond L., "Attitude and the Definition of the Situation," American Sociological Review, XVII (February, 1952), 50-58.
44. Greenberg, Bradley S., "On Relating Attitude Change and Information Gain," The Journal of Communication, XIV (September, 1964), 157-171.
45. Guerin, Quintin W. and Robert L. McKeand, "Attitudes that Hinder Self-Improvement," Adult Leadership, XVI (October, 1967), 144-145, 162.

46. Guthrie, E. R., "Measuring Student Opinion of Teachers," School and Society, XXV (February 5, 1927), 175-176.
47. Heider, Fritz, "Attitudes and Cognitive Organization," Journal of Psychology, XXI (July, 1946), 107-112.
48. Himmelweit, Hilde Therese, A. N. Oppenheim, and Pamela Vince, Television and the Child: An Empirical Study of the Effect of Television on the Young, London, Oxford University Press, 1958.
49. Hovland, Carl I., Irving L. Janis, and Harold H. Kelley, Communication and Persuasion, New Haven, Connecticut, Yale University Press, 1953.
50. \_\_\_\_\_ and Wallace Mandell, "An Experimental Comparison of Conclusion-Drawing by the Communicator and by the Audience," Journal of Abnormal Social Psychology, XLVII (July, 1952), 581-588.
51. \_\_\_\_\_ and Walter Veiss, "The Influence of Source Credibility on Communication Effectiveness," Public Opinion Quarterly, XV (Winter, 1951), 635-650.
52. Husek, T. R. and M. C. Wittrock, "The Dimensions of Attitudes toward Teachers as Measured by the Semantic Differential," Journal of Educational Psychology, LIII (October, 1962), 209-213.
53. Insko, Chester A., Theories of Attitude Change, New York, Appleton-Century-Crofts, 1967.
54. Jacob, Philip E., Changing Values in College: An Exploratory Study of the Impact of College Teaching, New York, Harper Brothers, 1957.
55. Jahoda, Marie and Neil Warren, "Introduction," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penquin Books, Inc., 1966.
56. \_\_\_\_\_, editors, Attitudes: Selected Readings, Baltimore, Penquin Books, Inc., 1966.
57. Jahoda, Marie, P. F. Lazarsfeld, and H. Zeisel, "Attitudes under Conditions of Unemployment," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penquin Books, Inc., 1966.

58. Janis, Irving L. and Seymour Feshback, "Effects of Fear-Arousing Communications," Journal of Abnormal Social Psychology, XLVIII (January, 1953), 78-92.
59. \_\_\_\_\_ and Bert T. King, "The Influence of Role-Playing on Opinion Change," Journal of Abnormal and Social Psychology, XLIX (April, 1954), 211-218.
60. \_\_\_\_\_, Arthur A. Lumsdaine, and Arthur I. Gladstone, "Effects of Preparatory Communications on Reactions to a Subsequent News Event," Public Opinion Quarterly, XV (Fall, 1951), 487-518.
61. Jordon, Nehemiah, "Behavioral Forces That Are a Function of Attitudes and Cognitive Organization," Human Relations, VI (No. 3, 1953), 273-287.
62. Katz, Joseph, "Personality and Interpersonal Relations in the College Classroom," The American College: A Psychological and Social Interpretation of the Higher Learning, edited by Nevitt Sanford, New York, John Wiley & Sons, Inc., 1963.
63. Kelley, Harold H., "Salience of Membership and Resistance to Change of Group-Anchored Attitudes," Human Relations, VIII (No. 3, 1955), 275-289.
64. Kelman, Herbert C. and Carl I. Hovland, "'Reinstatement' of the Communicator in Delayed Measurement of Opinion Change," Journal of Abnormal Social Psychology, XLVIII (July, 1953), 327-335.
65. Kerrick, Jean S., "The Effect of Relevant and Non-Relevant Sources on Attitude Change," Journal of Social Psychology, XLVII (February, 1958), 15-20.
66. \_\_\_\_\_, "News Pictures, Captions and the Point of Resolution," Journalism Quarterly, XXXVI (Spring, 1959), 183-188.
67. \_\_\_\_\_ and Daniel A. McMillan, III, "The Effects of Instructional Set on the Measurement of Attitude Change through Communications," Journal of Social Psychology, LIII (February, 1961), 113-120.
68. Lehmann, I. J. and S. O. Ikenberry, Critical Thinking, Attitudes, and Values in Higher Education: A Preliminary Report, East Lansing, Michigan, Michigan State University Press, 1959.

69. Lewis, Lionel S., "University Faculty and Students: A Profile," College and University, XLII (Spring, 1967), 345-350.
70. Lumsdaine, Arthur A. and Irving L. Janis, "Resistance to 'Counterpropaganda' Produced by a One-Sided Versus a Two-Sided 'Propaganda' Presentation," Public Opinion Quarterly, XVII (Summer, 1953), 311-318.
71. Lynn, R. and I. E. Gordon, "Maternal Attitudes to Child Socialization," British Journal of Social and Clinical Psychology, I (February, 1962), 52-55.
72. McCallon, Earl L., "Teacher Characteristics and Their Relationship to Change in the Congruency of Children's Perception of Self and Ideal-Self," The Journal of Experimental Education, XXXIV (Summer, 1966), 84-88.
73. McCroskey, James C., "The Effect of the Basic Speech Course on Students' Attitudes," The Speech Teacher, XVI (March, 1967), 115-117.
74. McKeachie, W. J. and Daniel Solomon, "Student Ratings of Instructors: A Validity Study," Journal of Educational Research, LI (January, 1958), 379-382.
75. Miller, Gerald R. and Murray A. Hewgill, "Some Recent Research on Fear-Arousing Message Appeals," Speech Monographs, XXXIII (November, 1966), 377-391.
76. Mills, Judson, Elliot Aronson, and Hal Robinson, "Selectivity in Exposure to Information," Journal of Abnormal and Social Psychology, LIX (September, 1959), 250-253.
77. Morrissette, J., "An Experimental Study of the Theory of Structural Balance," Human Relations, XI (No. 3, 1958), 239-254.
78. Moskos, Charles C. and Wendell Bell, "Attitudes towards Democracy," British Journal of Sociology, XV (December, 1964), 317-337.
79. Neidt, Charles O. and Dalva E. Hedlund, "The Relationship between Changes in Attitudes toward a Course and Final Achievement," The Journal of Educational Research, LXI (October, 1967), 56-58.
80. Nelson, Erland, "Radicalism-Conservatism in Student Attitudes," Psychological Monographs, I (No. 4, 1938), 1-32.

81. Newcomb, Theodore M., "An Approach to the Study of Communicative Acts," Psychological Review, LX (September, 1953), 393-404.
82. \_\_\_\_\_, "A Dictionary of the Social Sciences," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penquin Books, Inc., 1966.
83. \_\_\_\_\_, "The Prediction of Interpersonal Attraction," American Psychologist, XI (November, 1956), 575-586.
84. \_\_\_\_\_, Personality and Social Change: Attitude Formation in a Student Community, New York, Dryden Press, 1943.
85. O'Dowd, Donald D. and David C. Beardslee, "The Image of the College Professor," AAUP Bulletin, XLVII (September, 1961), 216-221.
86. Osgood, Charles E., George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning, Urbana, Illinois, University of Illinois Press, 1957.
87. \_\_\_\_\_ and Percy H. Tannenbaum, "The Principle of Congruity in the Prediction of Attitude Change," Psychological Review, LXII (January, 1955), 42-55.
88. Pace, C. Robert, "The Purdue Rating Scale for Instruction," The Sixth Mental Measurements Yearbook, edited by Oscar Krisen Buros, Highland Park, New Jersey, 1965.
89. Perrodin, Alex F., "Children's Attitudes towards Elementary School Science," Science Education, L (April, 1966), 214-218.
90. Remmers, J. J., "The College Professor as the Student Sees Him," Studies in Higher Education, XI, Lafayette, Indiana, Purdue University Press, 1934.
91. Ryans, D. G., Characteristics of Teachers, Washington, D. C., American Council on Education, 1960.
92. Sanford, R. Nevitt, "The Genesis of Authoritarianism," Psychology of Personality, edited by James L. McCary, New York, Logos Press, 1959.

93. Schramm, Wilbur, "The Effect of Mass Communication: A Review," Journalism Quarterly, XXVI (December, 1949), 397-409.
94. Spaight, Ernest, "Students Appraise Teachers' Methods and Attitudes," Improving College and University Teaching, XV (Winter, 1967), 15-17.
95. Stachowiak, James Gregory, "Hypnosis, The Principle of Congruity and Attitude Change," unpublished doctoral dissertation, Department of Psychology, University of Kansas, Lawrence, Kansas, 1961, as abstracted in Dissertation Abstracts, XXII (May, 1962), 4107.
96. \_\_\_\_\_ and C. Scott Moss, "Hypnotic Alteration of Social Attitudes," Journal of Personality and Social Psychology, II (July, 1965), 77-83.
97. Stephenson, Chester M., "The Relation between the Attitudes toward Negroes of Seniors in a School of Education and Their Major Subject," Journal of Educational Research, XLIX (October, 1955), 113-121.
98. Strand, David A., "A Rationale and Instrument for Student Evaluation of Classroom Teaching," Journal of the National Association of Women Deans and Counselors, XXX (Fall, 1966), 36-39.
99. Sutherland, Robert Sherman, "A Discriptive Analysis of Student Images of Effective College Instruction," unpublished doctoral dissertation, Department of Education, Arizona State University, Temple, Arizona, 1964, as abstracted in Dissertation Abstracts, XXV (January, 1965), 4008.
100. Sweatman, Charles, "A Self-Assessment Method for Helping Teachers Change Their Behavior," The Clearing House, XLI (October, 1966), 67-73.
101. Tannenbaum, Percy H., "Initial Attitude toward Source and Concept as Factors in Attitude Change through Communication," Public Opinion Quarterly, XX (Summer, 1956), 413-425.
102. \_\_\_\_\_, "Mediated Generalization of Attitude Change Via the Principle of Congruity," Journal of Personality and Social Psychology, III (May, 1966), 493-500.

103. Tannenbaum, Percy H. and Roy W. Gengel, "Generalization of Attitude Change through Congruity Principle Relationships," Journal of Personality and Social Psychology, III (March, 1966), 299-304.
104. \_\_\_\_\_, Jacqueline R. Macaulay, and Eleanor L. Norris, "Principle of Congruity and Reduction of Persuasion," Journal of Personality and Social Psychology, III (January, 1965), 233-238.
105. \_\_\_\_\_ and Eleanor L. Norris, "Effects of Combining Congruity Principle Strategies for the Reduction of Persuasion," Sociometry, XXVIII (June, 1965), 145-157.
106. Teigland, John J., "The Relationship between Measured Teacher Attitude Change and Certain Personality Characteristics," The Journal of Educational Research, LX (October, 1966), 84-85.
107. Thomas, William Isaac, and Florian Znaniecki, The Polish Peasant in Europe and America, Chicago, The University of Chicago Press, 1918.
108. Triandis, Harry C. and Martin Fishbein, "Cognitive Interaction in Person Perception," Journal of Abnormal Social Psychology, LXVII (November, 1963), 446-453.
109. Tuel, John K. and Merville C. Shaw, "The Development of a Scale to Measure Attitudinal Dimensions of the Educational Environment," Educational and Psychological Measurement, XXVI (Winter, 1966), 955-963.
110. Van Keuren, Ernest and Benjamin Lease, "Student Evaluation of College Teaching," Journal of Higher Education, XXV (March, 1954), 147-150.
111. Vitrogran, David, "A Method for Determining a Generalized Attitude of High School Students toward Science," Science Education, LI (March, 1967), 171-175.
112. Warren, Howard C., editor, Dictionary of Psychology, Boston, Houghton Mifflin Co., 1934.
113. Washburn, Margaret F., Movement and Mental Imagery, Boston, Houghton Mifflin Co., 1916.
114. Weiss, Walter, "A ' Sleeper ' Effect in Opinion Change," Journal of Abnormal and Social Psychology, XLVIII (April, 1953), 173-180.



115. Wilson, William R., "Students Rating Teachers," Journal of Higher Education, III (January, 1932), 75-82.
116. Zajonc, Robert B., "Balance, Congruity and Dissonance," Public Opinion Quarterly, XXIV (Summer, 1960), 280-296.

## CHAPTER III

### PROCEDURES FOR GATHERING AND TREATING THE DATA

The purpose of this chapter is fourfold: (1) To describe the subjects involved in the investigation, (2) To explain the measuring instrument and the rationale for its use as an attitude-assessing device, (3) To detail the chronology of securing the data, and (4) To report the statistical treatment given the data.

#### Description of the Sample

The subjects involved in the pretest phase of the study were 304 undergraduate business administration majors enrolled in a required public speaking course (Speech 110, Business Speaking) for the spring semester of 1968 at North Texas State University.

Subjects were registered in sixteen class sections, with each section ranging in number from seven to twenty-five students. The mean number per section was nineteen subjects; the median number was twenty and one-half; and the mode was twenty-two.

There were 256 males and 48 females. Of the total, 155 were freshmen; 77 were sophomores; 60 were juniors; and 12 were classified as seniors.

The posttest portion of the investigation included 206 subjects. There were 170 males and 36 females. There were 113 freshmen; 46 sophomores; 38 juniors; and 9 seniors.

Withdrawals from the course during the interim between the pre- and posttest, absences from class on the day of the posttest administration, and failure to follow directions for completing the posttest instrument accounted for the reduced number of subjects. Two entire sections had to be deleted from the study prior to the posttest because of an instructor resignation.

#### The Measurement Instrument

A form of the Semantic Differential was employed as the measuring instrument for the present study. Charles Osgood (10) invented and developed the Semantic Differential as a scaling instrument to objectively and quantitatively measure the psychological (connotative) meaning of concepts to people.

#### Theoretical Foundation of the Semantic Differential

The theoretical model underpinning the Semantic Differential evolved from what Osgood has contended was a "logical extension of scientific inquiry into an area generally considered immune to its attack" (10, p. 199). In 1952, he reported that "an extensive survey of the literature fails to uncover any generally accepted, standardized method for measuring meaning" (10, p. 199).

As a point of departure in his theorizing, Osgood accepted the fact that "the pattern of stimulation which is the sign is never identical with the pattern of stimulation which is the object" (10, p. 200). The word "book," for example, is not the same stimulus as is the object book. Yet the sign "book" elicits behavior which is in some way relevant to the object it signifies, a phenomenon not shared with an infinite number of other stimulus patterns that are not signs of the object. To Osgood, then, the question to be answered was, "Under what conditions does something which is not an object become a sign of that object?"

A number of meaning theorists have addressed themselves to this question. Ogden and Richards (9), proponents of the mentalistic view, believe that something which is not the object becomes a sign of that object when it gives rise to the idea associated with that object. Another theoretical position is held by Watsonian behaviorists and based on an application of Pavlovian conditioning principles. This model indicates that "signs achieve their meanings simply by being conditioned to the same reactions originally made to objects" (10, p. 201).

A third theory of meaning is associated with Morris (8), who formulated his "dispositional" view of meaning in a monograph, Foundations of the Theory of Signs. According to Morris, any pattern of stimulation which is not the

object becomes a sign of that object if it produces in a person a "disposition" to make any of the responses previously elicited by that object.

Osgood avoided the nebulousness of the mentalistic and "disposition" schools and the naivete of the substitution view and concentrated upon building more specificity into his own model of how meaning is formulated. Osgood *et al.* (11, p. 6) conceived of psychological (connotative) meaning as a representational mediation process which may be conceptualized by the paradigm in Figure 1.

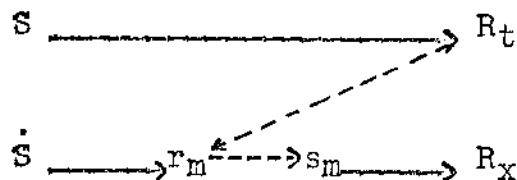


Fig. 1--Symbolic account of the development of a sign.

Figure 1 gives a symbolic account of the development of a sign, in accordance with Osgood's mediation hypothesis. To illustrate, the connotative meaning of the word "snake" is considered. The stimulus object (S) is a visual pattern of a long, skinny, slimy reptile body nearly always encountered in a fear-generating circumstance. This stimulus elicits a complex behavior pattern (R<sub>t</sub>), which is, in the case of the snake, a fear activity. Portions of the total behavior toward the snake-object become conditioned to the verbalized word, "snake." The mediating reaction (r<sub>m</sub>)

produces a distinctive pattern of self-stimulation ( $s_m$ ) which may elicit a variety of overt behaviors ( $R_x$ ), such as shivering and making a facial grimace, stepping very carefully in areas where snakes are reported to be found, and even refusing to accept a job in a locale where snakes are supposed to be plentiful.

Osgood clarified his model by stating the following:

This stimulus-producing process ( $r_m \rightarrow s_m$ ) is representational because it is part of the same behavior ( $R_t$ ) produced by the significate itself (S). . . . It is mediational because the self-stimulation ( $s_m$ ) produced by this short-circuited reaction can now become associated with a variety of instrumental acts ( $R_x$ ) which "take account" of the significate (11, p. 6).

Expressed another way, words represent things because they produce in human beings some replica of the actual behavior toward these things, by way of a mediation process. The meanings which different individuals have for the same sign vary, depending upon the nature of the total behavior occurring while the sign is being formulated.

With reference to Figure 1, it may be noted that the ( $r_m \rightarrow s_m$ ) process is equated with connotative meaning and is assumed to be an initiating condition for observable behavior ( $R_x$ ). As a means of inferring what is happening at ( $r_m$ ), it is essential to somehow sample the observable response generated by the sign. To accomplish this, Osgood resorted to linguistic encoding (i.e., verbal expression of

ideas). Osgood et al. offer the following explanation of how linguistic encoding is accomplished:

It is apparent that if we are to use linguistic encoding as an index of meaning we need (a) a carefully devised sample of alternative verbal responses . . ., (b) these alternatives to be elicited from subjects rather than emitted so that encoding fluency is eliminated as a variable, and (c) these alternatives to be representative of the major ways in which meanings vary (11, pp. 19, 20).

Translated in terms of the subject's task, he is presented a concept to be differentiated and a set of bipolar adjective scales against which to rate that concept. The subject merely indicates, for each item (pairing of a concept with a scale), the direction and magnitude of his association on a seven-step scale.

In Osgood's design for measuring connotative meaning, the subject's ratings of semantic scales (in terms of direction and intensity) are projected as points into what he calls "semantic space." Kerlinger (5) explained the notion of semantic space by analogizing it to a room in which there are three sticks at right angles to each other, intersecting in the center of the room and touching the walls, the ceiling, and the floor. The sticks are labeled X, Y, and Z, and are to be considered axes or coordinates. Further, there are several points scattered throughout the room, with some points clustered near each other and close to the X axis, others would be found near the Y coordinate, and still others in the proximity of the Z axis. Some of the points

would be situated between the axes. These points would be labeled with small letters, "a," "b," . . . "n," in any order. If the axes have been marked off according to an equal-interval number system, then any point could be specifically identified or operationally defined by using the numbers on the three axes. Through factor analysis, general meaning dimensions for the X, Y, and Z axes can be derived; therefore, the connotative "meaning" of each point in the semantic space would be some combination of the meanings given X, Y, and Z.

With respect to the construction of the instrument, an actual Semantic Differential is comprised of a number of scales, together with the concepts to be rated. Each scale is a pair of bipolar (opposite-in-meaning) adjectives, selected on the basis of their suitability to the particular research purpose under consideration. Normally, a seven-point rating scale separates the adjectives.

Through research, Osgood *et al.* (11) have found that, when factor-analyzed, the adjective pairs tend to fall into three main clusters. The most important cluster (factor) is composed of adjectives that can be described as evaluative. A second cluster consists of adjectives that seem to possess strength or potency ideas. The third dimension is termed activity because its adjectives seem to express motion and action. Although the evaluative, potency, and activity factors have tended to reoccur with high frequency in the



research conducted to date, as many as eight separate factors have emerged (11). The factors discussed have almost invariably accounted for at least 75 per cent of the variance.

It is from Osgood's research with the Semantic Differential as a measure of connotative meaning that the instrument's adaptation as an attitude measurement device has evolved. According to Osgood et al. it is tenable to claim that through employment of the Semantic Differential, a vehicle is available that will identify and localize attitude within the general system of internal mediational activity. This function of the Semantic Differential is explained as follows:

If attitude is . . . some portion of the internal mediational activity, it is, by inference from our theoretical model, part of the semantic structure of an individual, and may be correspondingly indexed. The factor analysis of meaning may then provide a basis for extracting this attitudinal component of meaning. In all the factor analyses we have done to date . . . a factor readily identifiable as evaluative in nature has invariably appeared; usually it has been the dominant factor, . . . accounting for the largest proportion of the total variance. . . . It seems reasonable to identify attitude, as it is ordinarily conceived in both lay and scientific language, with the evaluative dimension of the total semantic space. . . . (11, p. 190).

In order to index attitude it is necessary to use bipolar adjective scales which have high loadings on the evaluative factor and negligible loading on other factors. So that the purpose of the measurement is somewhat obscured, Osgood (11) suggests the inclusion of a number of scales

representing other factors. Such a practice also provides additional information on the meaning of the concept as a whole, apart from the attitude toward it.

To preface the following discussion of the reliability and validity potential of the Semantic Differential as an attitude measure, it is important to note the instrument indexes the properties that any measurement technique is expected to index.

Osgood et al. (11) contend that the Semantic Differential will indicate direction of attitude, be it favorable, unfavorable, or neutral. Direction is indicated simply as a score more toward the favorable poles for a favorable attitude, or more toward the unfavorable pole for an unfavorable attitude. Intensity of attitude is indexed by the magnitude of the polarization of the attitude score. Mehling (7) lends credence to both the direction and intensity assumption that the middle interval in the scales represents the neutral point in attitude. The unidimensionality of the attitude scale is automatically validated by the factor analytic treatment which uncovered the evaluative scales.

Test-retest reliability data have been reported by Tannenbaum (15). Attitude scores were computed by summing over six evaluative scales. The test-retest coefficients ranged from .87 to .93, with a mean  $r$  of .91.

Osgood and Tannenbaum found that reliability of the Semantic Differential as an attitude measure is "reasonably high, running in the .80's and .90's in available data" (12, p. 43).

The validity of the instrument as an attitude measure was tested by Osgood et al., with the results of correlations between scores on the evaluative scales for the Semantic Differential and scores on the Thurstone scales on attitude toward The Church, Negro, and Capital Punishment being .74, .82, and .81 respectively. "It is apparent," stated Osgood, "that whatever the Thurstone scales measure, the evaluative factor of the semantic differential measures just about as well" (11, pp. 193-194).

In another study carried out by Osgood et al. the evaluative scales of a Semantic Differential were compared to a Guttman-type scale. The rank order correlation between the two instruments was highly significant, revealing a rho of .78, P. .01. "The Guttman scale and the evaluative scales of the differential are measuring the same thing to a considerable degree" (11, p. 194).

Brinton (1) presented a method for selecting adjective pairs from Semantic Differential data, for use as a measure of attitude toward capital punishment. The selected adjectives were submitted to Guttman-scale analysis, producing a scale with an overall coefficient of reproducibility of

.975. Individual scores were summed over five evaluative scales. This set of scores produced an  $r$  of .82 with the single seven-step Guttman scale.

McCrosky (6) conducted seven separate experiments, with a view toward developing Likert scales to measure ethos, *i. e.*, attitudes toward a speaker held by a listener. A subsequent factor analysis of forty evaluative Semantic Differential items revealed that the usual evaluative factor splits into "authoritativeness" and "character" dimensions. The correlation between the Likert and Semantic Differential "authoritativeness" scales was .85. The  $r$  for "character" scales was .81. These results prompted the author to conclude that

The high correlations between the Likert and semantic differential scales are an indication of concurrent validity. Whatever the Likert scales measure, the semantic differential scales appear to measure equally as well. Since there is considerable justification for believing that the Likert scales are valid measures of the authoritativeness and character dimensions of ethos, we can also conclude that the semantic differential scales are valid measures of these dimensions (6, p. 71).

The Semantic Differential as an attitude measure was employed by Gulley and Berlo in a study designed to compare the effects of varying the order of arguments in a persuasive message on (1) attitude change toward the proposition, and (2) retention of the proposition, the assertions, and the evidence. The researchers contended that "the inability to demonstrate the significance of differences in attributable

to a lack of sensitivity or reliability of the measure used. However, "the reliability data collected of the Semantic Differential invariably resulted in correlations in the .80's and .90's. Furthermore, it has been shown to be sensitive to rather small changes of attitudes" (2, p. 296).

Prior to an explanation of the construction of the Semantic Differential used in the present investigation, the fact should be clarified that the Semantic Differential is not a test in the usual context of the term. Use of the word test normally implies a fixed set of items, scored by a fixed scoring system, culminating in standardization with national norms. A more appropriate term is technique, which, in the context of this study, is given to mean what Husek and Wittrock have called "an approach to the measurement of some attribute--an approach that has to be modified to fit the particular subject matter under investigation" (4, p. 209). Osgood emphasized this point when he stated that "there are no standard concepts and no standard scales; rather, the concepts and scales used in a particular study depend upon the purposes of the research."

#### Construction of the Semantic Differential for the Present Study

The particular form of the Semantic Differential constructed for the present study conformed to criteria suggested by the inventor of the technique. The first step in

constructing the instrument was to select the concepts to be judged. The word concept, according to Osgood, et. al. refers

. . . to the "stimulus" to which the subject's checking operation is a terminal "response." . . . The objects of judgment should, ideally, be both relevant to and representative of the area of research interest (11, p. 77).

Two objects of judgment (concepts) subsequently selected for rating were (1) Speech 110: Business Speaking, and (2) My Speech 110 Instructor.

The second step in constructing the Semantic Differential employed in the study was the choice of appropriate scales, i.e., bipolar adjective pairs. Osgood et al. (11) have established two main criteria for determining the scales: (1) factorial composition, and (2) relevance to the concepts being judged.

Seventeen of the twenty-four scales used were ultimately taken from several sets of bipolar adjective pairs which had been factor analyzed in connection with a variety of research purposes. Four primary sources of the scales were Osgood (11), McCroskey (6), Husek and Wittrock (4), and Smith (14).

Table I reveals all of the scales utilized in the present investigation with the factors around which the pairs tended to cluster in prior factor analyses. The adjective pairs are listed in order of appearance on the Semantic Differential used in the study.

TABLE I

## FACTOR REPRESENTATION OF SCALES SELECTED FOR CONCEPT RATING

Adjective Pair	Factor Represented
Helpful--Hindering . . . . .	Unknown
Wide--Narrow . . . . .	Potency
Fair--Unfair . . . . .	Evaluative
Clear--Hazy . . . . .	Evaluative
Valuable--Worthless . . . . .	Evaluative
Encouraging--Discouraging . . . . .	Unknown
Fresh--Stale . . . . .	Evaluative
Deep--Shallow . . . . .	Potency
Optimistic--Pessimistic . . . . .	Evaluative
Flexible--Rigid . . . . .	Tenacity
Active--Passive . . . . .	Activity
Complete--Incomplete . . . . .	Evaluative
Rational--Irrational . . . . .	Unknown
Hot--Cold . . . . .	Activity
Positive--Negative . . . . .	Evaluative
Stimulating--Dull . . . . .	Unknown
Certain--Uncertain . . . . .	Unknown
Good--Bad . . . . .	Evaluative
Strong--Weak . . . . .	Evaluative
Varied--Repetitious . . . . .	Unknown
Solid--Hollow . . . . .	Evaluative

TABLE I--Continued

Adjective Pair	Factor Represented
Pleasant--Unpleasant . . . . .	Evaluative
Practical--Impractical . . . . .	Unknown
Understandable--Mysterious . . . . .	Predictability

Since the Semantic Differential was to function as an attitude measure in the present study, nearly one-half of the twenty-four bipolar adjectives selected were evaluative in nature. Following the Osgood et al. (11) admonition, six scales representing other factors were included. Two are potency-oriented; two are activity-centered; one scale represents tenacity; and one is called predictability.

Seven scales of unknown factor representation were included in the Semantic Differential, principally because of their appropriateness to the concepts to be evaluated.

All scales selected seemed to meet the relevancy criterion. The adjective pairs had to be appropriate to both concepts, one a "person" concept and one a "nonperson" concept. The necessity of using relevant adjectives, in part, dictated the use of a number of adjectives with unknown factor composition.

A seven-step scale was interposed between the bipolar adjectives. The scale positions were defined for the subjects in the instructions which appeared on the cover sheet of the instrument.



The Semantic Differential format conformed to a graphic-scale method Osgood called Form II. This method had the reported advantages of being easy to duplicate, easy to score, of greater consistency of meaning in the item being judged, and more satisfying to the subjects using it.

The adjective pairs appeared on the instrument in random order. The polarity of twelve of the twenty-four scales was reversed randomly to counteract response bias tendencies. Each concept appeared on a separate sheet with the same set of scales. The same randomizing procedure was employed independently for each concept to avoid response bias tendencies from one concept to another.

A personal information questionnaire accompanied the Semantic Differential and asked for five items of data: (1) birthdate, (2) sex, (3) classification, (4) business major or not, and (5) previous speech training or not.

Knowledge of the subjects' birthdate, sex, and classification and previous speech training enabled the investigator to match pre- and posttest data, despite the anonymity of the respondents.

All nonbusiness majors' ratings were deleted from the study on the basis of information given in item four of the questionnaire.

A copy of the Semantic Differential and the accompanying Personal Information Questionnaire appears in the Appendix.

### Chronology of Data Collection

Prior to the termination of the fall semester of 1967-68, the Director of the Department of Speech and Drama, North Texas State University, and each regular faculty member and graduate teaching fellow who expected to teach Speech 110, Business Speaking for the spring semester, were consulted to gain permission to secure data from their respective class sections.

Five full-time faculty members taught seven of the sections tested, and six graduate teaching fellows taught the remaining nine sections. No more than two class sections were taught by the same person.

One week before the conclusion of the fall semester, the investigator conducted an orientation session designed to acquaint the Business Speaking course instructors with the following agenda:

1. To explain the purpose of the research.
2. To explain the procedures for administering the attitude instrument.
3. To provide the instructors with an outline for their self-introduction to their class sections.

In an effort to gain unanimity among the instructors in their initial exposure to the subjects, the self-introduction included name, qualifications, and teaching experience. No mention of the course was to be made in the introduction, in

order to preserve the conditions under which the congruity theory is tested.

During the first class period of the spring semester of 1968, after the instructor had called the roll and introduced himself, the investigator or one of his assistants entered the classrooms of each Business Speaking section for the purpose of administering the pretest. The course instructor absented himself from the classroom at this time.

The investigator then addressed the students as follows:

This course is Speech 110: Business Speaking. You have just met your instructor for this course and you should now know his (her) name, qualifications, and teaching experience. I am a member of a research team interested in gaining information that could lead to the improvement of the quality of this course and subsequently benefit you, the student. As the direct recipients of the course instruction, you are in a position to provide valuable data that is essential for our study. We also want to try out a new instrument designed to evaluate some vital aspects of the education process. Each of you will be given a booklet containing a brief questionnaire and two concepts which you will be asked to rate according to directions which I will read momentarily. As you undoubtedly already surmise, the success and value of this kind of research is to a great extent dependent upon the cooperation you are willing to give. Since you are asked to remain anonymous and in view of the importance of the study, I urge you to be completely sincere and truthful in making your responses. Please rest assured that this participation in this study will in no way influence your grade in the course.

After reading the statement above, the investigator distributed the Semantic Differential and the questionnaire to each student present. Instructions for completing the instrument were subsequently read by the investigator.

When the pretest was completed and collected, the instructor reentered the classroom and resumed his teaching duties. He was asked not to engage in any discussion or speculation concerning the research with his students.

During the first class period of the fourteenth week of the spring semester, the investigator or one of his assistants administered the posttest to fourteen of the original sixteen class sections. Premature resignation of one instructor necessitated the deletion of his sections from the study.

The identical form of the Semantic Differential and questionnaire employed for the pretest was used for the posttest. Again the instructor absented himself from the room during the administration of the test.

The investigator addressed the students as follows:

During the first class period of this semester you participated most cooperatively in a research study designed to give us information that would in turn help formulate a program to strengthen the quality of this course. We are now entering phase two of this study. Once again you are invited to assist us by completing a questionnaire and rating two concepts vital to the instructional process. You are asked to remain anonymous, just as you did the first time. You are reminded that the information has its greatest value and validity when you, the respondents, are completely frank in making your responses. Each of you will now be given a booklet that you are to complete according to the printed directions. Please do not open the booklet until I have read the directions with you.

The investigator then distributed the attitude instrument and the questionnaire to each student present and proceeded with the reading of the directions.

After the posttest was completed and collected, the instructor reentered the classroom and resumed his teaching duties.

Each of the fourteen class sections were kept intact as autonomous groups for the study.

### Statistical Treatment of the Data

Examination and treatment of the data were conducted in the following manner:

1. Each scale position of the Semantic Differential used in this investigation was assigned a value from one to seven, depending upon the polarity of the scale. The unfavorable pole was assigned a value of "1;" the favorable pole was given a value of "7;" and the middle scale position (neutral) was assigned a value of "4."
2. Raw scores were summed over all subjects ( $N = 304$ ), with means and standard deviations subsequently computed for each scale for each concept.
3. Pearson product-moment coefficients were calculated among the twenty-four scales for each concept. Both of the resulting tables of intercorrelations were factor-analyzed separately by the principal axes method, for the purpose of extracting the evaluative factor. Three factors had eigenvalues greater than one, and were subsequently orthogonally rotated, using the varimax technique discussed by Harmon (3). The factor loadings are reported in Chapter IV.

4. Examination of the factor loadings on all scales revealed nine bipolar adjective pairs to cluster around a dimension that was evaluative in nature.

5. The raw scores of each subject on each of the nine evaluative scales for each concept were standardized by conversion to Z scores (transformed standard scores) in accordance with the following formula discussed by Popham (13, p. 35):

$$Z = 10z + 50$$

6. Individual and group means were computed for both course and instructor concepts, and thus were regarded as the individual and group original attitude score for the course and the instructor respectively.

Posttest data were treated in the same manner as the pretest data, excluding the factor analyses. In testing the hypotheses, only group mean attitude scores were used. Each of the fourteen class sections was regarded as a group and, subsequently, analyzed independently.

Hypotheses one and two were tested in accordance with the following procedure:

1. For each group, the difference (D) between the original attitude score toward the course and the original attitude score toward the instructor was derived. The sign of the difference was disregarded.

2. The same operation was conducted with the attitude scores secured from the posttest data.

3. For groups of which the pretest D was greater than the posttest D, a  $t$  test for correlated differences was used to test the hypotheses.

A composite D for pre- and posttests of all groups was calculated and tested by a  $t$  test for correlated differences.

Hypothesis three was tested according to the following procedure:

1. Magnitude of attitude change toward the course was predicted by Osgood and Tannenbaum's (12) formula:

$$AC_{oj_1} = \frac{d_{oj_2}}{d_{oj_1} + d_{oj_2}} P_{oj_1}$$

where

$AC_{oj_1}$  = attitude change toward the course

$d_{oj_1}$  = pretest attitude toward the course

$d_{oj_2}$  = pretest attitude toward the instructor

$P_{oj_1}$  = difference between the pretest attitude toward the instructor and pretest attitude toward the course.

2. A  $t$  test for correlated differences was employed to test the null hypothesis of no difference between predicted and observed attitude change toward the course. The only groups tested were those which conformed to the directional hypothesis (subhypothesis 2).

Hypothesis four was tested in the same manner except that the prediction formula for magnitude of attitude change

toward the instructor was altered. Osgood and Tannenbaum's (12) formula in this instance is

$$AC_{oj_2} = \frac{d_{oj_1}}{d_{oj_1} + d_{oj_2}} P_{oj_2}$$

where

$AC_{oj_2}$  = predicted attitude change toward the instructor

$d_{oj_1}$  = pretest attitude toward the course

$d_{oj_2}$  = pretest attitude toward the instructor

$P_{oj_2}$  = difference between the pretest attitude toward the course and pretest attitude toward the instructor

A t test for correlated differences was used to test the null hypothesis of no difference between predicted and observed attitude change toward the instructor. Only those groups which conformed to the directional hypothesis (sub-hypothesis 1) were tested.

The .05 level was arbitrarily established as the level of significance for all statistical tests.

#### Summary

In order to secure the data utilized in this study, a Semantic Differential was designed as an attitude measurement instrument and administered to 304 business administration majors enrolled in fourteen sections of a business speaking



course. Osgood's criteria for the composition of a Semantic Differential for attitude assessment was met.

The basic plan undertaken in the present study was to measure the students' attitude toward a required speech course and toward the course instructor at the outset of a semester, and again at the conclusion of the semester.

The focus of attention centered on the directionality and magnitude of observed attitudinal shifts to determine whether or not the postulates of the principle of congruity, and the formulas attending them, might account for these shifts of attitude.

The chronology of methods of collecting data were described, as was the statistical treatment of the data.

## CHAPTER BIBLIOGRAPHY

1. Brinton, James, E., "Deriving an Attitude Scale from Semantic Differential Data," Public Opinion Quarterly, XXV (Summer, 1961), 289-295.
2. Gulley, Halbert E. and David K. Berlo, "Effect of Inter-cellular and Intracellular Speech Structure on Attitude Change and Learning," Speech Monographs, XXIII (November, 1956), 288-297.
3. Harmon, Harry H., Modern Factor Analysis, Chicago, University of Chicago Press, 1960.
4. Husek, T. R. and M. C. Wittrock, "The Dimensions of Attitudes toward Teachers as Measured by the Semantic Differential," Journal of Educational Psychology, LIII (October, 1962), 209-213.
5. Kerlinger, Fred N., Foundations of Behavioral Research, New York, Holt, Rinehart and Winston, Inc., 1966.
6. McCroskey, James C., "Special Reports; Scales for the Measurement of Ethos," Speech Monographs, XXXIII (March, 1966), 65-72.
7. Mehling, Reuben, "A Simple Test for Measuring Intensity of Attitudes," Public Opinion Quarterly, XXIII (Winter, 1959-1960), 576-578.
8. Morris, Charles, "Foundation of the Theory of Signs," International Encyclopedia of Unified Science, Vol. I, No. 2, Chicago, University of Chicago Press, 1938.
9. Ogden, C. K. and I. A. Richards, The Meaning of Meaning, New York, Harcourt, Brace & Co., 1923.
10. Osgood, Charles E., "The Nature and Measurement of Meaning," Psychological Bulletin, XLIX (May, 1952), 197-237.
11. \_\_\_\_\_, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning, Urbana, Illinois, University of Illinois Press, 1957.

12. Osgood, Charles E. and Percy H. Tannenbaum, "The Principle of Congruity in the Prediction of Attitude Change," Psychological Review, LXII (January, 1955), 42-55.
13. Popham, W. James, Educational Statistics; Use and Interpretation, New York, Harper & Row, Publishers, 1967.
14. Smith, Raymond G., "Semantic Differential Dimensions and Forms," Speech Monographs, XXXIII (March, 1966), 17-22.
15. Tannenbaum, Percy H., "Initial Attitude toward Source and Concept as Factors in Attitude Change through Communication," Public Opinion Quarterly, XX (Summer, 1956), 413-425.

## CHAPTER IV

### PRESENTATION, ANALYSIS, AND DISCUSSION OF RESULTS

The purpose of this chapter was to analyze the data collected in the manner described in Chapter III in order to determine if the principle of congruity can be used as a reliable predictor of undergraduate students' attitude change toward a speech course and toward the course instructor over a time period of one semester.

To accomplish this purpose, the chapter is divided into three parts:

1. A presentation and analysis of the results that emerged from the factor analyses of the semantic differential data.
2. A presentation of the findings associated with the statistical testing of the hypotheses.
3. A discussion of the findings with respect to the hypotheses.

The data generated by a two-concept, 24-scale semantic differential were treated by principal axes factor analyses and  $t$  tests for correlated samples so as to interpret the results. The .05 level of significance was arbitrarily selected as the level of confidence.

### Factor Analyses of Semantic Differential Data

Table II shows the means and standard deviations for all the pretest semantic differential scale ratings of the course concept and the instructor concept. The ratings were summed for all subjects involved in the study for each concept evaluated.

Since a separate factor analysis was run for each concept, separate correlation coefficients among the twenty-four Semantic Differential scales, means for each concept were derived. Pearson product-moment coefficients of correlation were computed among the mean ratings of the twenty-four scales used in the evaluation of the course concept. The resulting intercorrelation matrix appears on page as Table III. The bipolar adjective scales appear in Table III in the same order as they did for the course concept on the measurement instrument.

Table IV is comprised of the Pearson product-moment coefficients of correlation among mean scale ratings of the instructor concept. The scales were ordered on the measuring instrument for the instructor concept just as they are listed in Table IV.

Each  $24 \times 24$  matrix of intercorrelations, one matrix for the course concept and one for the instructor concept, was subjected to a principal axes factor analysis. With respect to the course concept, three factors emerged having

TABLE II  
 MEANS AND STANDARD DEVIATIONS FOR SCALE RATINGS OF THE COURSE  
 CONCEPT AND INSTRUCTOR CONCEPT SUMMED OVER ALL SUBJECTS

Scale	Course Concept		Instructor Concept	
	Mean	SD	Mean	SD
Hindering--Helpful	6.04	1.29	5.72	1.35
Wide--Narrow	4.86	1.39	4.99	1.36
Fair--Unfair	5.56	1.25	5.51	1.26
Hazy--Clear	4.73	1.72	5.45	1.40
Valuable--Worthless	6.26	.99	5.70	1.34
Discouraging--Encouraging	5.33	1.48	5.58	1.41
Fresh--Stale	5.03	1.48	5.56	1.35
Shallow--Deep	4.05	1.30	4.82	1.20
Pessimistic--Optimistic	5.00	1.45	5.49	1.34
Flexible--Rigid	5.23	1.47	4.98	1.51
Passive--Active	5.23	1.44	5.44	1.36
Complete--Incomplete	4.84	1.38	5.34	1.31
Rational--Irrational	5.48	1.24	5.49	1.27
Cold--Hot	4.16	1.18	4.61	1.18
Positive--Negative	5.28	1.26	5.44	1.35
Stimulating--Dull	5.19	1.48	5.53	1.28
Uncertain--Certain	4.54	1.65	5.52	1.32
Bad--Good	5.52	1.39	5.63	1.24
Weak--Strong	4.93	1.38	5.23	1.40
Repetitious--Varied	4.74	1.55	5.05	1.29
Solid--Hollow	4.88	1.24	5.22	1.25
Pleasant--Unpleasant	4.92	1.57	5.99	1.28
Impractical--Practical	5.82	1.43	5.64	1.30
Mysterious--Understandable	5.30	1.55	5.56	1.47

eigenvalues greater than 1.00 and were subsequently orthogonally rotated according to the varimax technique. Table V shows the rotated factor matrix of the scales for the course concept. The scales are listed according to the magnitude of loading on each successive factor.

TABLE III  
 COEFFICIENTS OF CORRELATION AMONG MEAN SCALE  
 RATINGS OF THE COURSE CONCEPT

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
W1*	.03	.24	.39	.47	.22	.23	.28	.37	.18	.36	.14	.19	.13	.14	.34	.32	.45	.37	.20	.26	.21	.47	.27
W2	.29	.29	.17	.24	.31	.30	.24	.09	.15	.16	.30	.12	.21	.34	.20	.14	.25	.28	.15	.18	.28	.17	.14
W3			.33	.41	.33	.27	.21	.21	.20	.06	.39	.27	.20	.30	.29	.21	.36	.33	.20	.30	.33	.32	.16
W4			.33	.33	.39	.37	.36	.36	.17	.32	.34	.24	.22	.26	.33	.47	.36	.46	.25	.33	.37	.29	.36
W5				.33	.39	.36	.15	.20	.21	.26	.28	.26	.17	.31	.45	.25	.41	.29	.18	.24	.29	.45	.26
W6					.39	.46	.06	.28	.24	.17	.24	.26	.14	.33	.42	.24	.41	.37	.14	.28	.53	.25	.16
W7							.24	.28	.20	.31	.39	.17	.29	.30	.50	.34	.29	.41	.22	.35	.39	.26	.18
W8								.21	.08	.23	.19	.03	.26	.19	.25	.22	.34	.33	.14	.26	.12	.29	.20
W9									.26	.47	.17	.25	.17	.23	.35	.32	.35	.39	.15	.32	.33	.42	.35
W10										.31	.22	.24	.08	.25	.43	.30	.25	.19	.31	.27	.27	.28	.20
W11											.19	.23	.16	.23	.33	.38	.33	.31	.25	.17	.33	.39	.34
W12												.23	.23	.23	.33	.35	.26	.27	.23	.19	.33	.24	.28
W13												.24	.16	.34	.33	.24	.30	.18	.16	.27	.19	.27	.22
W14												.29	.01	.36	.27	.14	.30	.38	.22	.22	.20	.28	.12
W15													.21	.21	.30	.35	.35	.34	.12	.35	.37	.26	.24
W16													.01	.36	.39	.40	.45	.46	.36	.41	.50	.38	.24
W17														.21	.39	.35	.45	.44	.24	.36	.35	.28	.40
W18														.21	.39	.40	.43	.62	.33	.31	.33	.50	.31
W19														.21	.39	.40	.43	.62	.33	.31	.33	.50	.31
W20														.21	.39	.40	.43	.62	.33	.31	.33	.50	.31
W21														.21	.39	.40	.43	.62	.33	.31	.33	.50	.31
W22														.21	.39	.40	.43	.62	.33	.31	.33	.50	.31
W23														.21	.39	.40	.43	.62	.33	.31	.33	.50	.31
W24														.21	.39	.40	.43	.62	.33	.31	.33	.50	.31

\* W = word

TABLE IV  
 COEFFICIENTS OF CORRELATION AMONG MEAN SCALE  
 RATINGS OF THE INSTRUCTOR CONCEPT

	Scale	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
W1*	.47	.51	.30	.52	.53	.40	.39	.46	.23	.35	.43	.59	.54	.47	.50	.37	.49	.13	.29	.58	.41	.35		
W2	.20	.27	.33	.33	.38	.27	.33	.35	.18	.23	.29	.37	.37	.21	.33	.33	.26	.16	.31	.31	.30	.27	.34	
W3		.33	.39	.36	.36	.22	.41	.41	.24	.35	.40	.45	.46	.42	.34	.28	.53	.21	.29	.50	.36	.36	.38	
W4			.31	.37	.37	.20	.33	.32	.27	.28	.37	.45	.31	.32	.30	.30	.26	.18	.30	.32	.45	.32	.31	
W5				.53	.37	.37	.26	.30	.04	.36	.41	.56	.39	.44	.50	.41	.45	.25	.29	.40	.33	.43	.38	
W6					.53	.33	.45	.25	.18	.27	.41	.38	.42	.35	.42	.42	.34	.10	.15	.35	.40	.27	.31	
W7						.33	.39	.30	.24	.41	.45	.40	.37	.30	.24	.44	.46	.38	.36	.54	.49	.46	.32	
W8							.39	.39	.11	.44	.45	.45	.39	.41	.31	.44	.44	.12	.29	.49	.44	.42	.31	
W9								.34	.34	.44	.44	.45	.39	.35	.16	.31	.25	.08	.15	.26	.20	.20	.19	
W10										.33	.23	.25	.17	.22	.34	.16	.40	.27	.35	.50	.45	.34	.28	
W11											.40	.42	.47	.38	.44	.34	.39	.31	.43	.50	.44	.34	.37	
W12											.23	.42	.46	.37	.44	.25	.25	.18	.44	.54	.54	.36	.39	
W13											.50	.50	.54	.47	.46	.46	.49	.22	.40	.52	.52	.40	.35	
W14												.42	.54	.48	.44	.44	.46	.19	.36	.48	.48	.45	.35	
W15												.42	.54	.48	.44	.44	.46	.19	.40	.52	.52	.45	.35	
W16												.42	.54	.48	.44	.44	.46	.19	.36	.48	.48	.45	.35	
W17												.42	.54	.48	.44	.44	.46	.19	.40	.52	.52	.45	.35	
W18												.42	.54	.48	.44	.44	.46	.19	.36	.48	.48	.45	.35	
W19												.42	.54	.48	.44	.44	.46	.19	.40	.52	.52	.45	.35	
W20												.42	.54	.48	.44	.44	.46	.19	.36	.48	.48	.45	.35	
W21												.42	.54	.48	.44	.44	.46	.19	.40	.52	.52	.45	.35	
W22												.42	.54	.48	.44	.44	.46	.19	.36	.48	.48	.45	.35	
W23												.42	.54	.48	.44	.44	.46	.19	.40	.52	.52	.45	.35	
W24												.42	.54	.48	.44	.44	.46	.19	.36	.48	.48	.45	.35	

\* W = word



Eleven of the twenty-four scales loaded on factor I. This factor is identifiable as evaluative by the semantic nature of the scales which have the highest loadings on it: discouraging--encouraging, pleasant--unpleasant, positive--negative, complete--incomplete, fair--unfair, fresh--stale, stimulating--dull, valuable--worthless, and rational--irrational. Two scales, wide--narrow and solid--hollow, are not usually considered evaluative, despite primary loading on that factor.

The second factor identified itself as an activity variable: passive--active, repetitious--varied, flexible--rigid, and uncertain--certain. Adjective scales such as helpful--hindering, pessimistic--optimistic, impractical--practical, and mysterious--understandable also clustered as an activity dimension. The good--bad scale, which usually loads on the evaluative factor, had primary loading on the activity variable, but considerable evaluative loadings as well.

The third factor was readily identifiable as potency, as can be seen by the nature of the scales: cold--hot, shallow--deep, and weak--strong.

The rotated factor matrix of scales for the instructor concept comprises Table VI. Those scales having highest loading in the evaluative factor are listed first. The semantic identity of factors II and III was unclear, as

TABLE V  
 ROTATED FACTOR MATRIX OF THE SCALES FOR THE COURSE CONCEPT

Scale	I	II	III	$h^2$
Discouraging--Encouraging	.67	.17	.01	.48
Pleasant--Unpleasant	.67	.22	.05	.49
Positive--Negative	.62	.18	.04	.42
Complete--Incomplete	.61	.15	.07	.40
Fair--Unfair	.58	.13	.15	.38
Fresh--Stale	.58	.20	.27	.45
Stimulating--Dull	.56	.43	.15	.52
Wide--Narrow	.55	-.10	.34	.43
Solid--Hollow	.48	.34	.11	.36
Valuable--Worthless	.44	.38	.11	.36
Rational--Irrational	.42	.37	-.35	.43
Passive--Active	.08	.70	.06	.50
Hindering--Helpful	.05	.68	.20	.51
Pessimistic--Optimistic	.16	.66	.05	.47
Impractical--Practical	.19	.62	.28	.50
Mysterious--Understandable	.17	.58	.04	.36
Uncertain--Certain	.35	.55	.03	.43
Bad--Good	.35	.55	.39	.57
Hazy--Clear	.40	.47	.13	.40
Flexible--Rigid	.36	.41	.23	.35
Repetitious--Varied	.26	.33	.15	.20
Cold--Hot	.23	.09	.68	.52
Shallow--Deep	.06	.29	.63	.47
Weak--Strong	.38	.45	.49	.59

evidenced by several cross-factor movements of the scales from the course concept to the instructor concept.

Of paramount concern were those scales that loaded primarily on the evaluative factor, since it is the evaluative dimension that is equated with attitude. Nine adjective scales were selected on the basis of loading on the evaluative factor extracted from both concepts. These scales were

TABLE VI  
 ROTATED FACTOR MATRIX OF SCALES FOR THE  
 INSTRUCTOR CONCEPT

Scales	I	II	III	$h^2$
Hindering--Helpful	.83	.16	.13	.73
Bad--Good	.77	.22	.24	.70
Valuable--Worthless	.76	.18	.14	.63
Impractical--Practical	.63	.21	.20	.48
Rational--Irrational	.61	.18	.16	.43
Discouraging--Encouraging	.60	.39	.22	.56
Passive--Active	.58	.34	.13	.46
Positive--Negative	.58	.35	.23	.51
Stimulating--Dull	.47	.47	.34	.57
Wide--Narrow	.47	.19	.47	.47
Fresh--Stale	.23	.71	.15	.58
Pessimistic--Optimistic	.19	.62	.12	.43
Weak--Strong	.49	.58	-.08	.58
Hazy--Clear	.48	.55	.01	.53
Uncertain--Certain	.27	.54	.17	.40
Shallow--Deep	.04	.54	.04	.29
Pleasant--Unpleasant	.15	.52	.29	.38
Solid--Hollow	.48	.52	.01	.50
Mysterious--Understandable	.39	.45	.12	.37
Repetitious--Varied	.13	.45	.45	.42
Complete--Incomplete	.40	.41	.35	.45
Flexible--Rigid	.08	.02	.82	.68
Fair--Unfair	.49	.11	.55	.56
Cold--Hot	.27	.29	.37	.30

valuable--worthless, rational --irrational, discouraging--encouraging, positive--negative, stimulating--dull, wide--narrow, solid--hollow, complete--incomplete, and fair--unfair.  
 Mean ratings on these nine scales were taken as the attitude measure for each concept.

Table V (p. 84) shows that all nine selected scales had primary loading on the evaluative factor for the course concept. For the instructor concept, however, three of the nine scales did not have highest loading on the evaluative variable. Table VI indicates solid--hollow and complete--incomplete had higher values on factor II and fair--unfair loaded highest on factor III. Further examination revealed that the evaluative factor (factor I) claimed nearly as much of the variance: .48 to .52 for solid--hollow, .40 to .41 for complete--incomplete, and .49 versus .55 for fair--unfair. These scales were therefore interpreted as evaluative and retained for the attitude measure.

#### Statistical Tests of the Hypotheses

All raw scores (scale ratings) made on the nine evaluative scales were converted to Z scores (transformed standard scores), then summed, thereby yielding the attitude scores for each subject for each concept. A group attitude score was considered to be the mean of all group members' individual attitude measures.

Table VII shows the pretest mean attitude for each group for the course concept and the instructor concept and the mean differences between the two concepts for each group. These data suggest two observations: (1) Initial attitude toward both course and instructor tends to hover near the neutral point (Neutrality is defined as a Z score of .50).

TABLE VII  
 PRETEST MEAN ATTITUDE FOR EACH GROUP FOR THE COURSE CONCEPT  
 AND INSTRUCTOR CONCEPT AND MEAN DIFFERENCES BETWEEN  
 THE TWO CONCEPTS FOR EACH GROUP

Group	N	Course Concept $\bar{X}$	Instructor Concept $\bar{X}$	Difference $D\bar{X}$
A	14	48.78	49.02	.24
B	17	50.71	50.01	.70
C	12	46.63	47.82	1.19
D	16	46.15	48.14	1.99
E	6	51.25	51.00	.25
F	17	50.71	50.01	.70
G	15	50.79	52.05	1.26
H	15	51.32	51.61	.29
I	17	50.30	47.41	2.89
J	18	51.71	49.46	2.25
K	13	52.47	53.09	.62
L	16	50.02	49.85	.17
M	20	50.72	50.05	.67
N	9	47.73	49.24	1.51
Composite		49.89	49.93	.04

(2) Despite the intergroup difference range of .17 to 2.89, a state of near, attitudinal congruity existed at the outset of the course. A composite mean difference between concepts of .04 strengthened the latter observation.

Table VIII reveals the posttest mean attitude for each group for the course concept and instructor concept and mean differences between the two concepts for each group. Examination of these data indicate greater divergence from attitudinal

TABLE VIII  
 POSTTEST MEAN ATTITUDE FOR EACH GROUP FOR THE COURSE CONCEPT  
 AND INSTRUCTOR CONCEPT AND MEAN DIFFERENCES BETWEEN  
 THE TWO CONCEPTS FOR EACH GROUP

Group	N	Course Concept $\bar{X}$	Instructor Concept $\bar{X}$	Difference $D\bar{X}$
A	14	49.62	47.64	1.98
B	17	52.42	53.72	1.30
C	12	50.22	52.43	2.21
D	16	49.74	51.60	1.86
E	6	51.49	52.25	.76
F	17	48.07	52.10	4.03
G	15	43.37	39.88	3.49
H	15	47.46	43.16	4.30
I	17	47.28	49.57	2.29
J	18	55.41	55.02	.39
K	13	51.40	51.80	.40
L	16	48.73	46.30	2.43
M	20	52.78	53.14	.36
N	9	52.50	51.13	1.37
Composite		50.04	49.98	.06

neutrality for most groups toward both concepts. Also apparent is the greater intergroup difference range (.36 for Group M to 4.30 for Group H). Attention is also directed to the composite statistics for posttest attitudes where there was a regression toward neutrality for attitude toward both course and instructor. Almost perfect attitudinal congruity existed at the end of the semester, as reflected in the slight difference of .06.

The basic hypothesis of this study was that student attitude change toward a required speech course and toward the course instructor between the outset and the end of a semester would be in the direction of greater congruity. Table IX indicates the pretest and posttest mean attitude difference between the course concept and instructor concept for each group;  $t$  tests for correlated means; and levels of significance. With respect to the pretest course-instructor mean differences and posttest course-instructor mean differences, the posttest mean difference had to be less than the pretest mean difference in order for greater congruity to exist. Such a condition prevailed for six of the fourteen groups. Groups D, I, J, K, M, and N achieved a greater degree of attitudinal equilibrium and, therefore, met the conditions of the basic hypothesis.

The results of  $t$  tests for correlated differences revealed that Group I shifted significantly toward congruity ( $P > .01$ ). Groups D, J, K, M, and N changed attitude in the direction of congruity, but not to a significant degree. Only Group J approached a significant  $t$  value ( $t = 1.72$ ).

Posttest mean difference between course and instructor concepts exceeded the pretest mean difference between the concepts for eight of the fourteen groups. Even though Groups A, B, C, E, F, G, H, and L were attitudinally more incongruent at the end of the semester,  $t$  tests for correlated

TABLE IX  
PRETEST AND POSTTEST MEAN ATTITUDE DIFFERENCE BETWEEN THE  
COURSE CONCEPT AND INSTRUCTOR CONCEPT FOR EACH GROUP,  
FISHER'S  $\underline{t}$  TESTS AND LEVELS OF SIGNIFICANCE

Group	N	Pretest ( $\bar{D}_c - \bar{D}_i$ )	Posttest ( $\bar{D}_c - \bar{D}_i$ )	$\underline{t}$	Level
A	14	.24	1.98	.95	NS
B	17	.48	1.30	.59	NS
C	12	1.19	2.21	.26	NS
D	16	1.99	1.86	.05	NS
E	6	.25	.76	.01	NS
F	17	.70	4.03	2.00	.05
G	15	1.26	3.49	2.51	.05
H	15	.29	4.30	1.65	NS
I	17	2.89	2.29	3.03	.01
J	18	2.25	.39	1.72	NS
K	13	.62	.40	.19	NS
L	16	.17	2.43	2.08	.05
M	20	.67	.36	1.12	NS
N	9	1.51	1.37	.78	NS
Composite		.04	.06	.18	NS

differences were computed to determine if the attitudinal incongruency departed significantly from the theory. Three groups, F, G, and L, became significantly more incongruent in their attitude toward course and instructor ( $P > .05$ ). The departure from congruency theory was nonsignificant for Groups A, B, C, E, and H. The composite  $\underline{t}$  value was .18, which represents a nonsignificant departure from the congruity model.



Subhypothesis 1 was stated in Chapter I as follows:

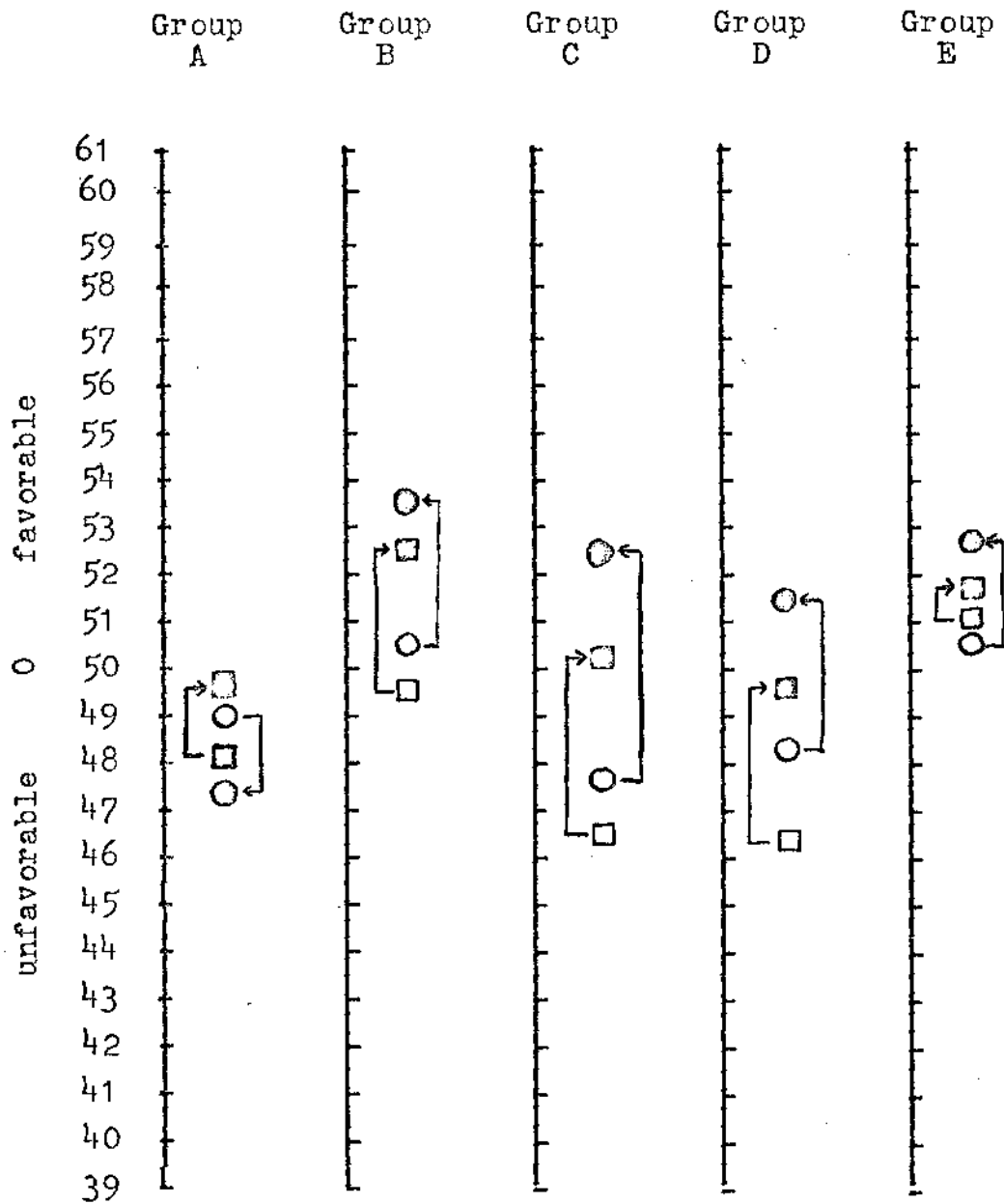
Each group's attitude toward the course instructor will change by the end of the semester in the direction of the group's original attitude toward the course.

Examination of Figure 2 reveals that for nine of the fourteen groups (64 per cent), attitude toward the instructor did change in the direction hypothesized. Congruity theory suggests that the point of attitudinal congruency is situated at a mathematically derived point between the original attitude toward the course and the original attitude toward the instructor. Groups A, E, I, G, H, J, and M shifted in the direction of the original attitude toward the course; however, the attitude shift surpassed the original attitude toward the course. Group I changed its attitude toward the instructor in the direction of the original attitude toward the course, but did not exceed it. Four of the five groups (B, C, D, and N) that shifted, attitudinally, in the opposite direction of that hypothesized, did so in a favorable direction. Group L indicated a less favorable attitude toward the instructor at the semester's end.

Subhypothesis 2 was stated as follows:

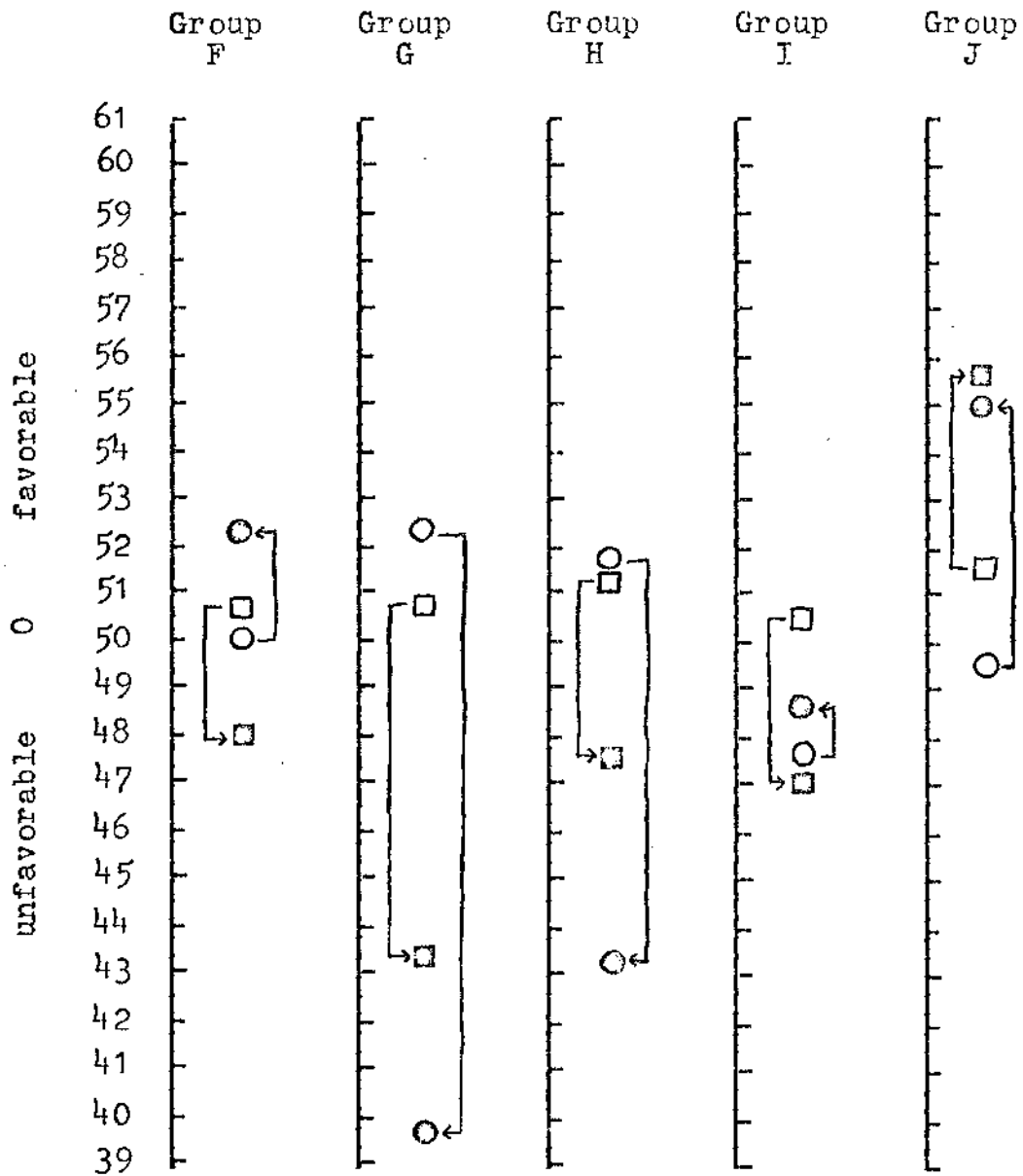
Each group's attitude toward the course will change by the end of the semester in the direction of the group's original attitude toward the course instructor.

Figure 2 shows that eight groups (57 per cent) changed their attitude toward the course in the hypothesized



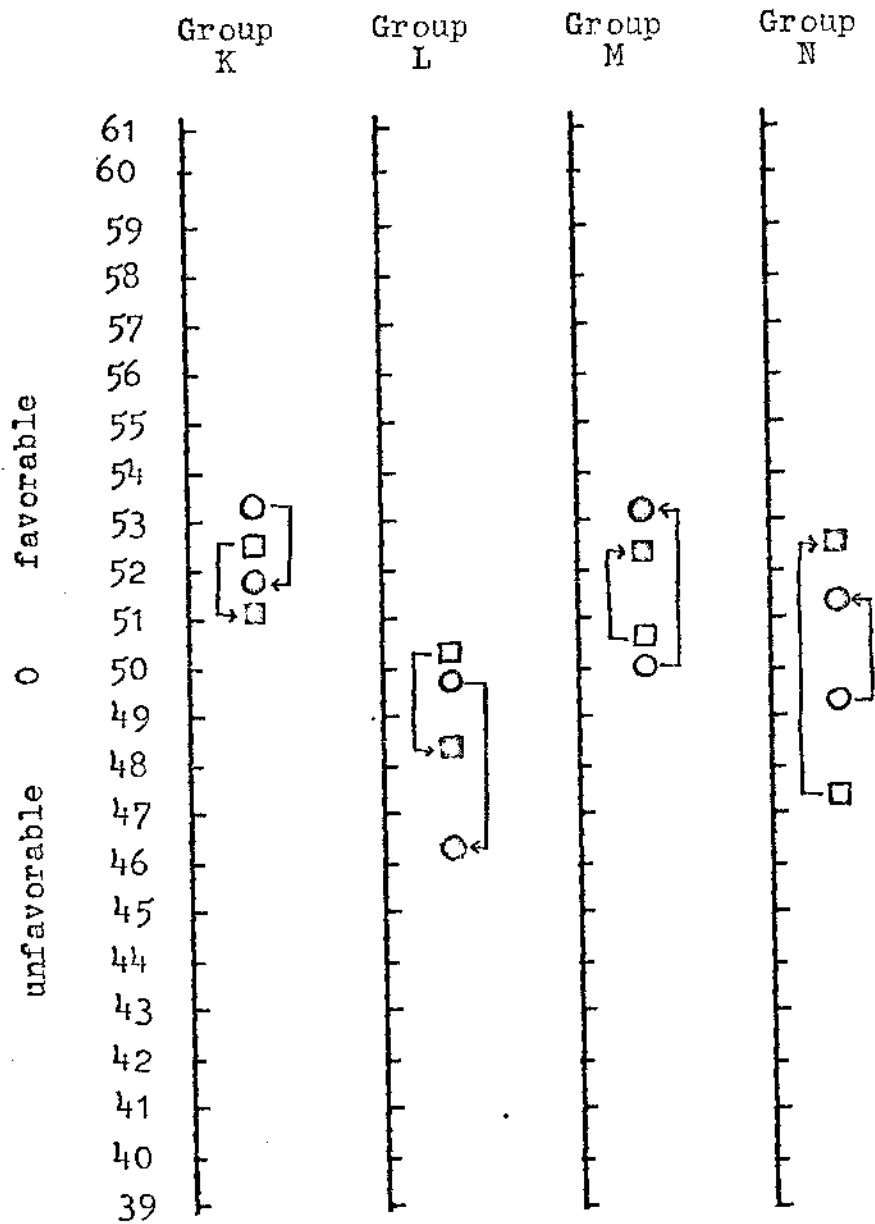
- Original Attitude toward the Course
- ◼ End-of-Semester Attitude toward Course
- Original Attitude toward the Instructor
- ◐ End-of-Semester Attitude toward Instructor

Fig. 2--Direction and Magnitude of Attitudinal Shifts toward the Course and Instructor for Individual Groups.



- Original Attitude toward the Course
- End-of-Semester Attitude toward Course
- Original Attitude toward the Instructor
- End-of-Semester Attitude toward Instructor

Fig. 2--(continued)--



- Original Attitude toward the Course
- End-of-Semester Attitude toward Course
- Original Attitude toward the Instructor
- End-of-Semester Attitude toward Instructor

Fig. 2--(continued)--

direction. Groups A, B, C, D, F, I, L, and N moved in the direction of and surpassed the original attitude toward the instructor. Attitude shifts for Groups A, B, C, D and N was in a favorable direction; Groups F, I, and L became less favorable toward the course.

Both the attitude toward the instructor and the attitude toward the course moved in the hypothesized directions for groups A, F, and I. In the case of A and F, the postsemester attitudes surpassed the original opposite attitudes, resulting in a situation of greater incongruity.

Subhypotheses 1 and 2 dealt with the directionality of attitude shifts. Subhypotheses 3 and 4 were made with reference to predictions of amount of attitude change.

The third subhypothesis was stated in the form of a null hypothesis as follows:

There will be no significant difference between the observed amount of student attitude change toward a required speech course and the predicted amount of student attitude change toward a required speech course.

After observation of Figure 2, it becomes apparent that the only meaningful statistical test of significance would be testing the differences between observed and predicted attitude change which conformed to the directional hypotheses. From the results of hypothesis 2, it will be remembered that eight groups shifted attitude toward the course in the

hypothesized direction. Table X shows the means and standard deviations of observed and predicted amounts of attitude change toward the course;  $t$  tests for correlated differences; and level of significance for the eight groups.

The null hypothesis of no significant difference was accepted in each of eight  $t$  tests for correlated differences between observed and predicted amounts of attitude change toward the course. All groups that shifted attitude toward the course in accordance with subhypothesis 2, confirmed subhypothesis 3.

TABLE X  
MEANS AND STANDARD DEVIATIONS OF OBSERVED AND PREDICTED  
AMOUNTS OF ATTITUDE CHANGE TOWARD THE COURSE;  $t$  TESTS  
FOR CORRELATED DIFFERENCES; AND LEVEL OF  
SIGNIFICANCE FOR EIGHT GROUPS

Group	N	Observed		Predicted		$t$	Level
		$\bar{X}$	SD	$\bar{X}$	SD		
A	14	.89	7.16	.45	2.82	.20	NS
B	17	2.60	6.21	.81	2.77	1.32	NS
C	12	4.48	11.46	.77	3.19	1.18	NS
D	16	3.58	7.61	1.38	3.99	1.58	NS
F	17	-2.65	8.63	-.28	1.85	-1.05	NS
I	17	-3.02	7.18	-1.16	3.04	-1.17	NS
L	16	-1.28	6.67	.42	3.34	-1.01	NS
N	9	4.77	7.16	.88	2.27	1.56	NS

Subhypothesis 4 was also stated in the form of a null hypothesis:

There will be no significant difference between the observed amount of student attitude change toward the course instructor and the predicted amount of student attitude change toward the course instructor.

The nine groups that met the directional conditions of subhypothesis 1 (i.e., attitude toward the instructor changed in the direction of the original attitude toward the course), were tested individually with respect to the third subhypothesis. Table XI is a presentation of means and standard deviations of observed and predicted amount of attitude change toward the instructor; t tests for correlated differences; and level of significance for the nine groups. The null hypothesis of no significant difference between observed and predicted attitude change toward the instructor was accepted for five groups (A, E, F, I and K). For Groups G and H, the t values were of sufficient magnitude to reject the null hypothesis at the .001 level. There was a significant difference between the observed and the predicted amount of attitude change toward the instructor in Groups J and M at the .01 and .05 levels respectively.

#### Discussion of the Findings

The basic hypothesis of this study was that student attitude change toward a required speech course and toward the course instructor between the outset and the end of a semester would be in the direction of greater congruity.

TABLE XI  
 MEANS AND STANDARD DEVIATIONS OF OBSERVED AND PREDICTED  
 AMOUNTS OF ATTITUDE CHANGE TOWARD THE INSTRUCTOR;  
 t TESTS FOR CORRELATED DIFFERENCES; AND LEVEL  
 OF SIGNIFICANCE FOR NINE GROUPS

Group	N	Observed		Predicted		t	Level
		$\bar{X}$	SD	$\bar{X}$	SD		
A	14	-1.38	11.41	.07	3.02	-.54	NS
E	6	.25	8.01	-.26	2.18	.14	NS
F	17	2.10	8.33	.43	1.87	.90	NS
G	15	-10.17	9.14	-.55	1.82	-4.20	.001
H	15	-8.45	8.05	-.04	2.29	-3.81	.001
I	17	2.16	6.15	1.71	3.58	.30	NS
J	18	5.56	6.82	1.55	4.91	3.06	.01
K	13	-1.29	5.36	-.21	2.00	-.95	NS
M	20	3.08	5.22	.44	2.31	2.21	.05

The fact that less than one-half (43 per cent) of the groups, attitudinally, shifted toward greater congruity (*i.e.*, attitude toward course and attitude toward instructor drew closer together), explicitly suggests that the congruity model does not account for student attitude change toward the instructor and toward the course over an extended time period. Three observations are offered which may account, in part, for the results.

First, Figure 2 graphically reflects relatively little difference between group attitude toward the course and toward the instructor at the outset of the semester (*i.e.*,



a high degree of congruity existed at the beginning). With reference to a favorable-unfavorable scale, the congruity model predicts the achievement of attitude harmony at a mathematically derived point between the original attitudes toward the two concepts. Apparently, the more diverse the original attitudes, the greater the propensity for both attitudes in question to shift toward congruity at a point between the extremes. Given a high degree of attitudinal congruity at the outset, plus a precise formula for determining the point of attitude balance, the congruity principle appears to be a criterion too exacting and immature for so complex and fickle a variable as human attitude.

Further inspection of Figure 2 reveals how it is possible for a group to achieve greater congruity of attitudes without meeting at an intermediate point. Groups D, I, J, K, M, and N demonstrated closer attitudinal harmony at the end of the semester, but only after a similar directional shift up or down the favorable-unfavorable scale.

Second, original attitudes toward both concepts for all groups tended to hover in the vicinity of neutrality. These results suggest (1) Students are inclined to suspend attitudinal judgment of their instructor and the course pending more exposure of both concepts, even in an emotion-generating course such as public speaking, and (2) The difficulty of predicting attitude shift is compounded when original attitude toward both concepts is neutral.

Third, the comparative congruity between attitude toward course and attitude toward the instructor at the beginning of the semester may have resulted, in part, from the data-collection method of the research design. The present design adhered to the usual methodology employed in congruity studies in that the subject's attitudes toward both concepts were assessed immediately following a brief exposure to the instructor. If the attitude toward the course had been measured before any exposure to the instructor, perhaps a "purer" attitude assessment of the course would have been obtained and, consequently, more divergent from attitude toward the instructor.

Subhypothesis 1.--Each group's attitude toward the course instructor will change by the end of the semester in the direction of the group's original attitude toward the course.

As reported earlier in the chapter and from Figure 2, it was noted that nine of the fourteen groups (64 per cent) shifted attitude toward the instructor in the predicted direction. These results suggest that the original attitude toward the course was insignificant in determining shift of attitude toward the instructor. First, five of the groups changed attitude toward the instructor in a direction opposite to that predicted. Second, eight of the nine groups exceeded the original attitude toward the course either up or down the scale. The results do not confirm subhypothesis 1

to any conclusive degree; however, the congruity principle implies that the object of the assertions (course) wields less influence on the source of the assertions (instructor) than is true of a converse situation.

Subhypothesis 2.--Each group's attitude toward the course will change by the end of the semester in the direction of the group's original attitude toward the course instructor.

Slightly over one-half of the groups (57 per cent) did change their attitude toward the course in the hypothesized direction. No clear trends of attitude change can be gleaned from Figure 2, Groups A, B, C, D, F, I, L, and N. Attitude change toward the course appears to be influenced by the attitude toward the instructor in Groups B, C, D, and L, since the course "followed" the instructor, but stayed, attitudinally, in the wake of the instructor. Groups A, F, and I shifted in such a way as to generate, theoretically, more incongruity. Such movement supports the contention that the attitude toward the course is independent of the attitude toward the instructor. Of the groups that departed from the hypothesized direction (E, G, H, J, and M), with respect to attitude toward the course, only Group J's course attitude exceeded the instructor position at the end of the semester.

Subhypothesis 3.--There will be no significant difference between the observed amount of student attitude change toward

a required speech course and the predicted amount of student attitude change toward a required speech course.

Eight of the fourteen groups that met the directional criterion did not achieve a change of attitude toward the course significantly more than what was predicted by the formula. This finding indicates that attitude toward the course did not shift significantly away from a position of neutrality. The magnitude of course attitude movement seems to be conditioned by the relative change of the instructor attitude. The data are not conclusive and cannot inspire a firm commitment to any overall trend.

Subhypothesis 4.--There will be no significant difference between the observed amount of student attitude change toward the course instructor and the predicted amount of student attitude change toward the course instructor.

The same nine groups that conformed to subhypothesis 1 were tested for significance of amount of change. Figure 2 shows that Groups G, H, J, and M did shift in attitude toward their instructor to a significant degree beyond that which was predicted by the theory. Although Figure 2 portrays a rather dramatic movement downward for Groups G and H, the changes are not extraordinary when the total scale range is taken into account. The results are inconclusive; nevertheless, there is some suggestion that group attitude toward the instructor tends toward greater polarization over a

semester. Perhaps the more dynamic interaction between instructor and student would account, in part, for a greater amount of attitude change toward the instructor.

#### Summary

The major purpose of this chapter was to present, analyze, and discuss the data collected as prescribed in Chapter III. The aim was accomplished through a three-part division of the material:

1. Factor analyses of the Semantic Differential data.
2. Statistical tests of the hypotheses.
3. Discussion of the findings.

Chapter V will be comprised of the summary, conclusions, and recommendations for further research.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

This study was designed with the intention of determining if the congruity principle of attitude change can be used as a reliable predictor of undergraduate student attitude change toward a required speech course and toward the course instructor between the outset and the end of a semester. A semantic differential was constructed and modified for use as an attitude measurement instrument in order to determine the subjects' attitude toward the course and toward the instructor. The instrument was administered as a pretest during the first class period of the semester and as a post-test during the fourteenth week of the semester. The sample was composed of fourteen class sections of the same public speaking course. Group data constituted the basic unit of statistical treatment and analysis.

The subjects participating in this investigation consisted, originally, of sixteen class sections of undergraduate business administration majors enrolled in a required public speaking course at North Texas State University during the spring semester of 1968. Premature resignation of one course instructor forced the elimination of two groups from the

study prior to the posttest. The 206 subjects represented all four undergraduate classifications and both sexes.

Five full-time faculty members taught seven of the sections tested, and five graduate teaching fellows taught the remaining seven sections. No more than two classes were taught by the same person.

The basic hypothesis of this study was that group attitude change toward a required speech course and toward the course instructor between the outset and the end of the semester would be in the direction of greater congruity.

Four subhypotheses were investigated:

1. That each group's attitude toward the course instructor would change by the end of the semester in the direction of the group's original attitude toward the course.

2. That each group's attitude toward the course would change by the end of the semester in the direction of the group's original attitude toward the course instructor.

3. That there would be no significant difference between the observed amount of group attitude change toward a required speech course and the predicted amount of group attitude change toward a required speech course.

4. That there would be no significant difference between the observed amount of group attitude change toward the course instructor and the predicted amount of group attitude change toward the course instructor.

A t test for correlated differences was used to treat the results obtained from the collection and tabulation of data from each group. An arbitrary level of significance was set at .05.

### Findings

An analysis of the data bearing on the hypotheses revealed the following:

Basic hypothesis: Forty-three per cent (6 of 14) of the groups shifted, attitudinally, in the direction of greater congruity by the end of a semester. One of the six groups achieved a significant shift toward greater congruity.

Subhypothesis one: Nine of the fourteen groups (64 per cent) changed their attitude toward the instructor in the direction of the original attitude toward the course. Five of the nine groups developed a more favorable attitude toward the instructor; four groups became less favorable, attitudinally, toward their instructor.

Subhypothesis two: Fifty-seven per cent (8 of 14) of the groups shifted their attitude toward the course in the direction of the original attitude toward the course instructor. Of the eight groups, five became more favorable in attitude and three groups were less favorable in their attitude toward the course.

Subhypothesis three: Eight of the fourteen groups shifted their attitude toward the speech course in the



hypothesized direction and thereby qualified to be tested under hypothesis three. There was no significant difference between the observed amount of attitude change and the predicted amount of attitude change toward the course for any of the eight groups tested.

Subhypothesis four: Nine of the fourteen groups met the directional condition of the congruity model and were subsequently tested under hypothesis four. Five of the nine groups showed no significant difference between the observed amount of attitude change and the predicted amount of attitude shift toward the instructor. Four groups actually changed their attitude toward their instructor significantly more than the amount predicted by the congruity theory.

#### Implications

The present study was conceived as a basic exploratory investigation. It was addressed to the task of determining if a class's attitude change toward the course and the instructor could be predicted by a specific theory of attitude change. Such a research venture had not been conducted prior to this study.

The inconclusive results strongly suggest that any implications, theoretical or practical, should be considered and accepted with caution.

No unanimity of results was indicated by the findings;

however, two trends were observed with respect to the nature of the groups' attitudinal shifts.

First, a high degree of congruity of group attitude toward the course and toward the instructor appeared to exist at the outset of the semester. The near-congruency tended to be close to the neutral position. Given such a situation, plus the fact that the end-of-the-semester attitudes seemed to be highly congruent, suggested that student attitude toward course and instructor remained in a relatively balanced state. It may have been that the absence of appreciable pressure toward congruity at the outset rendered the directional prediction potential of the congruity model inoperative. Since the groups were attitudinally neutral toward course and instructor at the beginning of the semester, the implication that the students adopted a wait-and-see frame of reference seemed to have merit.

The second observed trend was the nature of the change of group attitude toward the instructor and the course. Eight of the nine groups that shifted their attitude toward the instructor in the predicted direction, exceeded the original attitude toward the course. Attitude change toward the instructor tended to result in the movement of the course attitude in the same direction. Of the eight groups that changed their attitude toward the course in the predicted direction, all exceeded the original attitude toward the

instructor. There was, however, less tendency for the attitude toward the instructor to follow in the same direction. There was a propensity for the group attitude toward the instructor to be more polarized than the course attitude, as was apparent in the instructor shifts. In light of the latter observation, the suggestion was offered that group attitude toward the instructor was somewhat more autonomous than was group attitude toward the course. Perhaps the dynamic nature of student-instructor relationship created greater attitudinal change. The implication was that person-to-person interaction may have fostered more attitude shift than was true of the more static person-to-course interaction.

### Conclusions

On the basis of the analysis of the results, and within the limitations of the investigation, certain conclusions are offered with reference to the population studied:

1. The principle of congruity is not a reliable predictor of an undergraduate class's attitude change toward a required speech course and toward the course instructor between the outset and the end of a semester.
2. Group attitude toward a required speech course and toward the course instructor is highly congruent at the outset of the semester.

3. An inverse relationship tends to exist between the degree of incongruity present at the outset of the semester and the likelihood of greater congruity at the end of a semester.

a. The more incongruent the attitudes at the outset, the greater is the likelihood of higher congruity at the end of a semester.

b. The more congruent the attitudes at the outset, the greater is the likelihood of greater incongruity at the end of the semester.

4. The direction of a group's attitude change toward the instructor is unpredictable when the prediction is based on the original attitude toward the course.

5. The direction of a group's attitude change toward a required speech course is unpredictable when the prediction is based on the original attitude toward the instructor.

6. When a group changes its attitude toward a required speech course in the predicted direction, no significant difference is present between the observed amount of change and the amount of change predicted by the congruity theory.

7. When a group changes its attitude toward the course instructor in the predicted direction, predictions of the amount of change appear to be unreliable.

8. Group attitude toward a required speech course and

toward the course instructor tends to approach neutrality at the outset of the semester, implying that nonspeech majors enter a required speech course willing to suspend judgment, attitudinally.

### Recommendations

Exploratory research of the type represented in the present study invited several recommendations for further research. The research activity suggested below seems to be the next logical phase of a complete investigation.

Further testing of the congruity model under pedagogical circumstances is urged. Such research might be conducted after modification of the present design. For example, the course concept should be rated prior to any exposure of the instructor. Periodic rating of the course and instructor should be made throughout the semester. It is further suggested that researchers who are completely independent of the concepts rated should administer the semantic differential.

A second area of research interest indicated by the present study involves the measurement of student attitude change, under pedagogical conditions, in the other disciplines. There appears to be a need for further investigation into the following: (1) the comparison of attitudes and attitude change among the various undergraduate classifications; (2) the comparison of attitudes and attitude change between required and elective courses; (3) the comparison

of attitudes and attitude change between majors and nonmajors; (4) the comparison of attitudes and attitude change among the various types of courses (e.g., performance, lecture, and laboratory courses); and (5) the comparison of attitudes and attitude change among various class sizes (e.g., mass lecture, small group, and traditional).

Implications from the findings of the preceding recommended research contain potential theoretical significance. The culmination of such research could be an empirically derived theoretical model, accounting for and predicting student attitude change in the pedagogical setting.

APPENDIX

INSTRUCTIONS: The purpose of this study is to measure the meanings of certain things to various people by having them judge them against a series of descriptive scales. In taking this test, please make your judgments on the basis of what these things mean to you. On each page of this booklet you will find a different concept to be judged and beneath it a set of scales. You are to rate the concept on each of these scales in order.

Here is how you are to use these scales:

If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your check-mark as follows:

fair X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ unfair

or

fair \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X unfair

If you feel that the concept is quite closely related to one or the other end of the scale (but not extremely), you should place your check-mark as follows:

fair \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ unfair

or

fair \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ unfair

If the concept seems only slightly related to one side as opposed to the other side (but is not really neutral), then you should check as follows:

fair \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ unfair

or

fair \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ unfair

The direction toward which you check, of course, depends upon which of the two ends of the scale seem most characteristic of the thing you're judging.

If you consider the concept to be neutral on the scale, both sides of the scale equally associated with the concept,

or if the scale is completely irrelevant, unrelated to the concept, then you should place your check-mark in the middle space:

fair \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ unfair

IMPORTANT: Place your check-marks in the middle of spaces, not on the boundaries:

\_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ X : \_\_\_\_\_

this

not this

Be sure you check every scale for every concept--do not omit any. Never put more than one check-mark on a single scale.

Do not look back and forth through the items. Do not try to remember how you checked similar items earlier in the test. Make each item a separate and independent judgment. Work at fairly high speed through this test. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that we want. On the other hand, please do not be careless, because we want your true impressions.



Rate the following

SPEECH 110: BUSINESS SPEAKING

- Hindering\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Helpful
- Wide\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Narrow
- Fair\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Unfair
- Hazy\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Clear
- Valuable\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Worthless
- Encouraging\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Discouraging
- Fresh\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Stale
- Shallow\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Deep
- Pessimistic\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Optimistic
- Flexible\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Rigid
- Passive\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Active
- Complete\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Incomplete
- Rational\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Irrational
- Cold\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Hot
- Positive\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Negative
- Stimulating\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Dull
- Uncertain\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Certain
- Bad\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Good
- Weak\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Strong
- Repetitious\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Varied
- Solid\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Hollow
- Pleasant\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Unpleasant
- Impractical\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Practical
- Mysterious\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ :\_\_\_\_\_ Understandable

Rate the following  
YOUR SPEECH 110 INSTRUCTOR

Discouraging \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Encouraging  
 Pleasant \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Unpleasant  
 Impractical \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Practical  
 Varied \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Repetitious  
 Weak \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Strong  
 Fresh \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Stale  
 Cold \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Hot  
 Hollow \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Solid  
 Unfair \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Fair  
 Flexible \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Rigid  
 Narrow \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Wide  
 Complete \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Incomplete  
 Stimulating \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Dull  
 Negative \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Positive  
 Passive \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Active  
 Hazy \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Clear  
 Optimistic \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Pessimistic  
 Worthless \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Valuable  
 Deep \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Shallow  
 Certain \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Uncertain  
 Bad \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Good  
 Hindering \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Helpful  
 Irrational \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Rational  
 Understandable \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ Mysterious

## PERSONAL INFORMATION QUESTIONNAIRE

DIRECTIONS: Please indicate the appropriate response by making an "X" in the appropriate box. Do not place your name anywhere on this sheet as we want your anonymity to be preserved.

1. Birthdate:

(Please indicate) \_\_\_\_\_

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2. Sex:

Male

Female

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3. Classification:

Freshman

Sophomore

Junior

Senior

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4. Are you a business major?

Yes

No

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5. Have you ever taken a speech course prior to this one?

Yes

No

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## BIBLIOGRAPHY

### Books

- Allport, G. W., "Attitudes in the History of Social Psychology," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penguin Books, Inc., 1966.
- Argyle, M., "The Attitudes of Religious People," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penguin Books, Inc., 1966.
- Bettelheim, B. and M. Janowitz, "Prejudice," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penguin Books, Inc., 1966.
- Brown, Roger, "Models of Attitude Change," New Directions in Psychology, New York, Holt, Rinehart, and Winston, 1962.
- Festinger, Leon, A Theory of Cognitive Dissonance, Evanston, Illinois, Row, Peterson, 1957.
- \_\_\_\_\_, J. Riecken, and S. Schachter, When Prophecy Fails, Minneapolis, University of Minnesota Press, 1956.
- Harmon, Harry H., Modern Factor Analysis, Chicago, University of Chicago Press, 1960.
- Himmelweit, Hilde Therese, A. N. Oppenheim, and Pamela Vince, Television and the Child: An Empirical Study of the Effect of Television on the Young, London, Oxford University Press, 1958.
- Hovland, Carl I., Irving L. Janis, and Harold H. Kelley, Communication and Persuasion, New Haven, Connecticut, Yale University Press, 1953.
- Insko, Chester A., Theories of Attitude Change, New York, Appleton-Century-Crofts, 1967.
- Jacob, Philip E., Changing Values in College: An Exploratory Study of the Impact of College Teaching, New York, Harper Brothers, 1957.

- Jahoda, Marie and Neil Warren, editors, Attitudes: Selected Readings, Baltimore, Penguin Books, Inc., 1966.
- \_\_\_\_\_, P. F. Lazarsfeld, and H. Zeisel, "Attitudes under Conditions of Unemployment," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penguin Books, Inc., 1966.
- Katz, Joseph, "Personality and Interpersonal Relations in the College Classroom," The American College: A Psychological and Social Interpretation of the Higher Learning, edited by Nevitt Sanford, New York, John Wiley & Sons, Inc., 1963.
- Kerlinger, Fred N., Foundations of Behavioral Research, New York, Holt, Rinehart and Winston, Inc., 1966.
- Lehmann, I. J. and S. O. Ikenberry, Critical Thinking, Attitudes, and Values in Higher Education: A Preliminary Report, East Lansing, Michigan, Michigan State University Press, 1959.
- Newcomb, Theodore M., "A Dictionary of the Social Sciences," Attitudes: Selected Readings, edited by Marie Jahoda and Neil Warren, Baltimore, Penguin Books, Inc., 1966.
- \_\_\_\_\_, Personality and Social Change: Attitude Formation in a Student Community, New York, Dryden Press, 1943.
- Ogden, C. K. and I. A. Richards, The Meaning of Meaning, New York, Harcourt, Brace & Co., 1923.
- Osgood, Charles E., George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning, Urbana, Illinois, University of Illinois Press, 1957.
- Pace, C. Robert, "The Purdue Rating Scale for Instruction," The Sixth Mental Measurements Yearbook, edited by Oscar Krisen Buros, Highland Park, New Jersey, 1965.
- Popham, W. James, Educational Statistics: Use and Interpretation, New York, Harper & Row, Publishers, 1967.
- Remmers, H. H., "The College Professor as the Student Sees Him," Studies in Higher Education, XI, Lafayette, Indiana, Purdue University Press, 1934.

Ryans, D. G., Characteristics of Teachers, Washington, D. C., American Council on Education, 1960.

Sanford, R. Nevitt, "The Genesis of Authoritarianism," Psychology of Personality, edited by James L. McCary, New York, Logos Press, 1959.

Thomas, William Isaac, and Florian Z<sup>o</sup>ñniecki, The Polish Peasant in Europe and America, Chicago, The University of Chicago Press, 1918.

Thompson, Wayne N., Quantitative Research in Public Address and Communication, New York, Random House, 1967.

Warren, Howard C., editor, Dictionary of Psychology, Boston, Houghton Mifflin Co., 1934.

Washburn, Margaret F., Movement and Mental Imagery, Boston, Houghton Mifflin Co., 1916.

#### Articles

Abbatiello, Aurelius A., "An Objective Evaluation of Attitude Change in Training," Training and Development Journal, XXI (November, 1967), 23-34.

Anderson, John E., Jr. and Melvin C. Neeley, "Attitude of Science Camp Students towards Various Sciences," Science Education, LI (April, 1967), 273-275.

Anderson, Lynn R. and Martin Fishbein, "Predictions of Attitude from the Number, Strength, and Evaluative Aspects of Beliefs about the Attitude Object," Journal of Personality and Social Psychology, II (September, 1965), 437-443.

Anderson, Norman H., "Averaging Versus Adding as a Stimulus Combination Rule in Impression Formation," Journal of Experimental Psychology, LXX (October, 1965), 394-400.

Anikeeff, Alixis M., "Factors Affecting Student Evaluation of Initiation on Liking for a Group," Journal of Abnormal and Social Psychology, XXXVII (December, 1953), 458-460.

- Aronson, Elliot and Judson Mills, "The Effect of Severity of Initiation on Liking for a Group," Journal of Abnormal and Social Psychology, LIX (September, 1959), 177-181.
- Barclay, A. and Frederick J. Thumin, "A Modified Semantic Differential Approach to Attitude Assessment," Journal of Clinical Psychology, XIX (July, 1963), 376-378.
- Berlo, David K. and Halbert E. Gulley, "Some Determinants of the Effect of Oral Communications in Producing Attitude Change and Learning," Speech Monographs, XXIV (March, 1957), 10-20.
- Bettinghaus, Erwin P., "Cognitive Balance and Development of Meaning," Journal of Communication, XIII (June, 1963), 94-105.
- \_\_\_\_\_, "The Operation of Congruity in an Oral Communication Situation," Speech Monographs, XXVIII (August, 1961), 131-142.
- Birch, Herbert G., "The Effect of Socially Disapproved Labeling upon a Well-Structured Attitude," Journal of Abnormal and Social Psychology, XL (July, 1945), 301-310.
- Bloom, L., "A Reappraisal of Piaget's Theory of Moral Judgment," Journal of Genetic Psychology, XCV (September, 1959), 3-12.
- Boldt, W. J. and J. B. Straud, "Changes in Attitudes of College Students," Journal of Educational Psychology, XXV (November, 1934), 611-619.
- Bowers, John Waite, "The Congruity Principle and Oral Communication," Central States Speech Journal, XIV (May, 1963), 88-91.
- Brehm, Jack W., "Attitudinal Consequences of Commitment to Unpleasant Behavior," Journal of Abnormal and Social Psychology, LX (November, 1960), 379-383.
- \_\_\_\_\_, "Increasing Cognitive Dissonance by a Fait Accompli," Journal of Abnormal and Social Psychology, LVIII (May, 1959), 379-382.
- \_\_\_\_\_, "Post-Decision Changes in the Desirability of Alternatives," Journal of Abnormal and Social Psychology, LII (May, 1956), 384-389.

- Brim, Burl J., "Attitude Changes in Teacher Education Students," The Journal of Educational Research, LIX (July-August, 1966), 441-445.
- Brinton, James E., "Deriving an Attitude Scale from Semantic Differential Data," Public Opinion Quarterly, XXV (Summer, 1961), 289-295.
- Brooks, William D. and Sarah M. Platz, "The Effects of Speech Training upon Self-Concept as a Communicator," The Speech Teacher, XVII (January, 1968), 44-49.
- Bugelski, Richard, and Olive Lester, "Changes in Attitudes of College Students During Their College Course and After Graduation," Journal of Social Psychology, XII (November, 1940), 319-332.
- Burdick, Harry A. and Alan J. Burnes, "A Test of 'Strain toward Symmetry' Theories," Journal of Abnormal and Social Psychology, LVII (November, 1958), 367-369.
- Calder, Clarence R., Jr., "Self-Directed Reading Materials," The Reading Teacher, XXI (December, 1967), 248-252.
- Campbell, Donald E., "Dimensional Attitude Changes of Student Teachers," The Journal of Educational Research, LXI (December, 1967), 160-162.
- Cartwright, Darwin and Frank Harary, "Structural Balance: A Generalization of Heider's Theory," Psychological Review, LXIII (September, 1956), 277-293.
- Clarke, H. M., "Conscious Attitudes," American Journal of Psychology, XXII (April, 1911), 214-249.
- Costin, Frank and William D. Kerr, "Effects of a Mental Hygiene Course on Graduate Education Students' Attitudes and Opinions Concerning Mental Illness," The Journal of Educational Research, LX (September, 1966), 35-38.
- Crannell, C. W., "A Preliminary Attempt to Identify the Factors in Student-Instructor Evaluation," The Journal of Psychology, XXXVI (October, 1953), 417-422.
- Dawson, George G., "Changing Students' Attitudes," Improving College and University Teaching, XIV (August, 1966), 200-203.



- DeFleur, M. L. and F. R. Westie, "Verbal Attitudes and Overt Acts," American Sociological Review, XXIII (December, 1958), 667-673.
- Droba, D. D., "The Nature of Attitude," Journal of Social Psychology, IV (November, 1933), 444-463.
- Ehrlich, Danuta, Isaiah Guttman, Peter Schonbach, and Judson Mills, "Post-Decision Exposure to Relevant Information," Journal of Abnormal and Social Psychology, LIV (January, 1957), 98-102.
- Faris, Ellsworth, "The Concept of Social Attitudes," Journal of Applied Sociology, IX (May-June, 1925), 404-409.
- Festinger, Leon and James M. Carlsmith, "Cognitive Consequences of Forced Compliance," Journal of Abnormal and Social Psychology, LVIII (March, 1959), 203-210.
- Fishbein, Martin and Ronda Hunter, "Summation Versus Balance in Attitude Organization and Change," Journal of Abnormal and Social Psychology, LXIX (November, 1964), 505-510.
- Freedman, Mervin B., "Changes in Six Decades of Some Attitudes and Values Held by Educated Women," Journal of Social Issues, XVII (No. 1, 1961), 19-28.
- Gorden, Raymond L., "Attitude and the Definition of the Situation," American Sociological Review, XVII (February, 1952), 50-58.
- Greenberg, Bradley S., "On Relating Attitude Change and Information Gain," The Journal of Communication, XIV (September, 1964), 157-171.
- Guerin, Quintin W. and Robert L. McKeand, "Attitudes That Hinder Self-Improvement," Adult Leadership, XVI (October, 1967), 144-145, 162.
- Gulley, Halbert E. and David K. Berlo, "Effect of Intercellular and Intracellular Speech Structure on Attitude Change and Learning," Speech Monographs, XXIII (November, 1956), 288-297.
- Guthrie, E. R., "Measuring Student Opinion of Teachers," School and Society, XXV (February 5, 1927), 175-176.
- Heider, Fritz, "Attitudes and Cognitive Organization," Journal of Psychology, XXI (July, 1946), 107-112.

Hovland, Carl I. and Wallace Mandell, "An Experimental Comparison of Conclusion-Drawing by the Communicator and by the Audience," Journal of Abnormal and Social Psychology, XLVII (July, 1952), 581-588.

\_\_\_\_\_ and Walter Veiss, "The Influence of Source Credibility on Communication Effectiveness," Public Opinion Quarterly, XV (Winter, 1951), 635-650.

Husek, T. R. and M. C. Wittrock, "The Dimensions of Attitudes toward Teachers as Measured by the Semantic Differential," Journal of Educational Psychology, LIII (October, 1962), 209-213.

Janis, Irving L. and Seymour Feshback, "Effects of Fear-Arousing Communications," Journal of Abnormal and Social Psychology, XLVIII (January, 1953), 78-92.

\_\_\_\_\_ and Bert T. King, "The Influence of Role-Playing on Opinion Change," Journal of Abnormal and Social Psychology, XLIX (April, 1954), 211-218.

\_\_\_\_\_, Arthur A. Lumsdaine, and Arthur I. Gladstone, "Effects of Preparatory Communications on Reactions to a Subsequent News Event," Public Opinion Quarterly, XV (Fall, 1951), 487-518.

Jordon, Nehemiah, "Behavioral Forces That Are a Function of Attitudes and Cognitive Organization," Human Relations, VI (No. 3, 1953), 273-287.

Kelley, Harold H., "Salience of Membership and Resistance to Change of Group-Anchored Attitudes," Human Relations, VIII (No. 3, 1955), 275-289.

Kelman, Herbert C. and Carl I. Hovland, "'Reinstatement' of the Communicator in Delayed Measurement of Opinion Change," Journal of Abnormal Social Psychology, XLVIII (July, 1953), 327-335.

Kerrick, Jean S., "News Pictures, Captions and the Point of Resolution," Journalism Quarterly, XXXVI (Spring, 1959), 183-188.

\_\_\_\_\_, "The Effect of Relevant and Non-Relevant Sources on Attitude Change," Journal of Social Psychology, XLVII (February, 1958), 15-20.

- Kerrick, Jean S. and Daniel A. McMillan, III, "The Effects of Instructional Set on the Measurement of Attitude Change through Communications," Journal of Social Psychology, LIII (February, 1961), 113-120.
- Lewis, Lionel S., "University Faculty and Students: A Profile," College and University, XLII (Spring, 1967), 345-350.
- Lumsdaine, Arthur A. and Irving L. Janis, "Resistance to 'Counterpropaganda' Produced by a One-Sided Versus a Two-Sided 'Propaganda' Presentation," Public Opinion Quarterly, XVII (Summer, 1953), 311-318.
- Lynn, R. and I. E. Gordon, "Maternal Attitudes to Child Socialization," British Journal of Social and Clinical Psychology, I (February, 1962), 52-55.
- McCallon, Earl L., "Teacher Characteristics and Their Relationship to Change in the Congruency of Children's Perception of Self and Ideal-Self," The Journal of Experimental Education, XXXIV (Summer, 1966), 84-88.
- McCroskey, James C., "The Effect of the Basic Speech Course on Students' Attitudes," The Speech Teacher, XVI (March, 1967), 115-117.
- \_\_\_\_\_, "Special Reports; Scales for the Measurement of Ethos," Speech Monographs, XXXIII (March, 1966), 65-72.
- McKeachie, W. J. and Daniel Solomon, "Student Ratings of Instructors: A Validity Study," Journal of Educational Research, LI (January, 1958), 379-382.
- Mehling, Reuben, "A Simple Test for Measuring Intensity of Attitudes," Public Opinion Quarterly, XXIII (Winter, 1959-1960), 576-578.
- Miller, Gerald R. and Murray A. Hewgill, "Some Recent Research on Fear-Arousing Message Appeals," Speech Monographs, XXXIII (November, 1966), 377-391.
- Mills, Judson, Elliot Aronson, and Hal Robinson, "Selectivity in Exposure to Information," Journal of Abnormal and Social Psychology, LIX (September, 1959), 250-253.
- Morrisette, J., "An Experimental Study of the Theory of Structural Balance," Human Relations, XI (No. 3, 1958), 239-254.

Moskos, Charles C. and Wendell Bell, "Attitudes towards Democracy," British Journal of Sociology, XV (December, 1964), 317-337.

Neidt, Charles O. and Dalva E. Hedlund, "The Relationship between Changes in Attitudes toward a Course and Final Achievement," The Journal of Educational Research, LXI (October, 1967), 56-58.

Nelson, Erland, "Radicalism-Conservatism in Student Attitudes," Psychological Monographs, L (No. 4, 1938), 1-32.

Newcomb, Theodore M., "An Approach to the Study of Communicative Acts," Psychological Review, LX (September, 1953), 393-404.

\_\_\_\_\_, "The Prediction of Interpersonal Attraction," American Psychologist, XI (November, 1956),

O'Dowd, Donald D. and David C. Beardslee, "The Image of the College Professor," AAUP Bulletin, XLVII (September, 1961), 216-221.

Osgood, Charles E., "The Nature and Measurement of Meaning," Psychological Bulletin, XLIX (May, 1952), 197-237.

\_\_\_\_\_ and Percy H. Tannenbaum, "The Principle of Congruity in the Prediction of Attitude Change," Psychological Review, LXII (January, 1955), 42-55.

Perrodin, Alex F., "Children's Attitudes towards Elementary School Science," Science Education, L (April, 1966), 214-218.

Schramm, Wilbur, "The Effect of Mass Communication: A Review," Journalism Quarterly, XXVI (December, 1949), 397-409.

Smith, Raymond G., "Semantic Differential Dimensions and Forms," Speech Monographs, XXXIII (March, 1966), 17-22.

Spaights, Ernest, "Students Appraise Teachers' Methods and Attitudes," Improving College and University Teaching, XV (Winter, 1967), 15-17.

Stachowiak, James G. and C. Scott Moss, "Hypnotic Alteration of Social Attitudes," Journal of Personality and Social Psychology, II (July, 1965), 77-83.

- Stephenson, Chester M., "The Relation between the Attitudes toward Negroes of Seniors in a School of Education and Their Major Subject," Journal of Educational Research, XLIX (October, 1955), 113-121.
- Strand, David A., "A Rationale and Instrument for Student Evaluation of Classroom Teaching," Journal of the National Association of Women Deans and Counselors, XXX (Fall, 1966), 36-39.
- Sweatman, Charles, "A Self-Assessment Method for Helping Teachers Change Their Behavior," The Clearing House, XLI (October, 1966), 67-73.
- Tannenbaum, Percy H., "Initial Attitude toward Source and Concept as Factors in Attitude Change through Communication," Public Opinion Quarterly, XX (Summer, 1956), 413-425.
- \_\_\_\_\_, "Mediated Generalization of Attitude Change Via the Principle of Congruity," Journal of Personality and Social Psychology, III (May, 1966), 493-500.
- \_\_\_\_\_ and Roy W. Gengel, "Generalization of Attitude Change through Congruity Principle Relationships," Journal of Personality and Social Psychology, III (March, 1966), 299-305.
- \_\_\_\_\_, Jacqueline R. Macaulay, and Eleanor L. Norris, "Principle of Congruity and Reduction of Persuasion," Journal of Personality and Social Psychology, III (January, 1965), 233-238.
- \_\_\_\_\_ and Eleanor L. Norris, "Effects of Combining Congruity Principle Strategies for the Reduction of Persuasion," Sociometry, XXVIII (June, 1965), 145-157.
- Teigland, John J., "The Relationship between Measured Teacher Attitude Change and Certain Personality Characteristics," The Journal of Educational Research, LX (October, 1966), 84-85.
- Triandis, Harry C. and Martin Fishbein, "Cognitive Interaction in Person Perception," Journal of Abnormal and Social Psychology, LXVII (November, 1963), 446-453.

- Tuel, John K. and Merville C. Shaw, "The Development of a Scale to Measure Attitudinal Dimensions of the Educational Environment," Educational and Psychological Measurement, XXVI (Winter, 1966), 955-963.
- Van Keuren, Ernest and Benjamin Lease, "Student Evaluation of College Teaching," Journal of Higher Education, XXV (March, 1954), 147-150.
- Vitrogran, David, "A Method for Determining a Generalized Attitude of High School Students toward Science," Science Education, LI (March, 1967), 171-175.
- Weiss, Walter, "A 'Sleeper' Effect in Opinion Change," Journal of Abnormal and Social Psychology, XLVIII (April, 1953), 173-180.
- Wilson, William R., "Students Rating Teachers," Journal of Higher Education, III (January, 1932), 75-82.
- Zajonc, Robert B., "Balance, Congruity and Dissonance," Public Opinion Quarterly, XXIV (Summer, 1960), 280-296.

#### Encyclopedia Articles

- Morris, Charles, "Foundation of the Theory of Signs," International Encyclopedia of Unified Science, Vol. I, No. 2, Chicago, University of Chicago Press, 1938.

#### Unpublished Materials

- Echandia, Paul P., "A Methodological Study and Factor Analytic Validation of Forced-Choice Performance Ratings of College Accounting Instructors," unpublished doctoral dissertation, Department of Education, New York University, New York City, 1964, as abstracted in Dissertation Abstracts, XXV (January, 1965), 2605.
- Garber, Herbert, "Certain Factors Underlying the Relationship between Course Grades and Student Judgments of College Teachers," unpublished doctoral dissertation, Department of Education, University of Connecticut, Storrs, Connecticut, 1965, as abstracted in Dissertation Abstracts, XXVI (May, 1966), 6512.

Stachowiak, James G., "Hypnosis, the Principle of Congruity and Attitude Change," unpublished doctoral dissertation, Department of Psychology, University of Kansas, Lawrence, Kansas, 1961, as abstracted in Dissertation Abstracts, XXII (May, 1962), 4107.

Sutherland, Robert S., "A Descriptive Analysis of Student Images of Effective College Instruction," unpublished doctoral dissertation, Department of Education, Arizona State University, Temple, Arizona, 1964, as abstracted in Dissertation Abstracts, XXV (January, 1965), 4008.