



3 1293 10456 4996



This is to certify that the

thesis entitled

Cognitive Adjustment of Perceived Self Credibility,
Perceived Source Credibility, and Perceived Task
Difficulty as a Result of Feedback in Task
Oriented Dyads

presented by

Robert Owen Engbretson

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Communication

Leo Martin
Major professor

Date June 12, 1964

ROOM USE ONLY

ROOM USE ONLY

John

~~RECEIVED~~

~~RECEIVED~~

187
~~RECEIVED~~

PICKUP SPR 1984

ABSTRACT

COGNITIVE ADJUSTMENT OF PERCEIVED SELF CREDIBILITY, PERCEIVED SOURCE CREDIBILITY, AND PERCEIVED TASK DIFFICULTY AS A RESULT OF FEEDBACK IN TASK ORIENTED DYADS

by Robert Owen Engbretson

The rationale of this study developed from the premise that in an interaction situation involving task accomplishment, an individual has a number of cognitive clusters which are relevant to the situation. These cognitive clusters were conceptually defined as: Self Credibility, or the perceptions a person has concerning his own ability to engage in the interaction; Source Credibility, or the perceptions a person has concerning the abilities of other participants to engage in the interaction; and, Task Difficulty, or the perceptions a person has concerning the complexity and difficulty of the task in which the person is engaged. The rationale further stated that when an individual receives feedback which is not consistent with these cognitive elements, he is placed in a state of cognitive imbalance. In order to restore cognitive balance it is necessary for the individual to make changes in the cognitive elements. A number of alternative ways to change the cognitive elements are available to the individual. This research identified specific changes occurring in these cognitive elements under varying combinations of Self Credibility, Source Credibility and Feedback.

Eighty female undergraduates engaged singly in an interaction situation with a male confederate. To experimentally assign subjects to one of eight treatment conditions involving high or low Self and

Source Credibility, each subject engaged in a practice period, after which she received information concerning her competency and the competency of the confederate.

Without being visible to each other, the subject and the confederate then engaged in a task oriented interaction. The task was to describe the positions of a geometric puzzle in such a way that the confederate could reproduce the puzzle. During the interaction, the confederate responded to the communication efforts of the subject by a prearranged positive or negative verbal feedback schedule.

Pre and post measures of Source Credibility were obtained with semantic differential type scales taken from a recent factor analytic study which identified empirical factors for conceptualizing and operationalizing Source Credibility. These scales were generalized for use in measuring Self Credibility. Task Difficulty was measured with similar scales.

Analysis of the data supported the experimental manipulations. To test the hypotheses, t tests for related samples on the differences between the means were used. The results of the analysis for the eight treatment conditions indicate that:

1. Across all treatment conditions, the feedback a subject receives from a source affects her perception of Self Credibility, the credibility of the source of the feedback, and her perception of the difficulty of the task.

2. Self Credibility appears to be the most stable of the variables; and, hence, least susceptible to change. Three of the four significant changes in Self Credibility occurred in positive feedback treatments.
3. Consistent across all treatment conditions, Source Credibility decreased under negative feedback and increased under positive feedback conditions.
4. The subjects' perceptions of the difficulty of the task change under differing conditions of feedback. Under negative feedback the task is perceived as being more difficult, while under positive feedback the task is perceived as being less difficult.

Within a "balance model" framework, twelve of twenty four predictions were correct. Of twelve incorrect predictions, eleven involved significant changes under conditions in which the "balance model" would predict no change. A possible explanation was developed in which it was proposed that the feedback served as a secondary reinforcing or nonreinforcing stimulus to the statements used in the experimental manipulation of the independent variables. It was suggested that had the experimental manipulation of the independent variables been more successful many of the significant changes which were not predicted would disappear.

COGNITIVE ADJUSTMENT OF PERCEIVED SELF CREDIBILITY,
PERCEIVED SOURCE CREDIBILITY, AND PERCEIVED TASK
DIFFICULTY AS A RESULT OF FEEDBACK IN TASK
ORIENTED DYADS

By

Robert Owen Engbretson

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Communication

1964

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation to Dr. Gerald Miller, for the many hours spent on my behalf directing the thinking, execution, and writing of this dissertation. Mr. Albert Talbott, who provided a great deal of assistance in the statistical analysis of the study also deserves my deepest appreciation. Their assistance, as friends and colleagues, forced a clarity which was often lacking in the random thoughts of the writer.

For assistance throughout my advanced degree program, I would like to thank: Dr. David K. Berlo, Chairman, Department of Communication; Professor Leo Martin, the Chairman of my doctoral committee; and Dr.'s Charles Blackman, Carl Gross, Hideya Kumata, Colby Lewis, and Malcolm MacLean, Jr.

For typing of this manuscript and assistance and guidance throughout my advanced degree program, I would like to express my appreciation to Mrs. Shirley Sherman. Her cheerfulness and willingness to help has made many a bleak day easier to accept.

The greatest debt of gratitude is owed to my wife Betty, for her willingness to accept the role of graduate student wife and provide stability during a period when it is needed; and to my children Kevin, Kurt, Kerry, and Kit, who were never sure what degree and dissertation meant to them but were willing to go without their father for long periods of time.

TABLE OF CONTENTS

CHAPTER		Page
I	RATIONALE AND HYPOTHESES	1
	Rationale	1
	Hypotheses	11
II	METHOD	14
	Subjects	14
	Procedure	14
	Dependent Variables	19
	Self and Source Credibility	20
	Task Difficulty	21
	Additional Dependent Measures	23
III	RESULTS	24
	Manipulation of Independent Variables	24
	Self Credibility	24
	Source Credibility	27
	Feedback	30
	Hypotheses of the Study	31
	Additional Analysis	40
IV	CONCLUSIONS, DISCUSSION, AND IMPLICATIONS FOR FURTHER RESEARCH	46
	Conclusions	46
	Discussion	52
	Implications for Further Research	56
	REFERENCED BIBLIOGRAPHY	59
	APPENDIX A	62
	Questionnaire	63
	Positive Feedback Schedule	72
	Negative Feedback Schedule	73
	Diagrams of Puzzles	74

LIST OF TABLES

TABLE		Page
1.	Pre Test Means for Subjects Assigned to High or Low Self Credibility	24
2.	Summary Table of the Three Factor Analysis of Variance of Pre Test Scores of Self Credibility	25
3.	Pre Test Self Credibility Means for Subjects in Each of the Eight Treatments	25
4.	Critical Difference Test Between Self Credibility Treatment Means	26
5.	Pre Test Means for Subjects Assigned to High or Low Source Credibility	27
6.	Summary Table of the Three Factor Analysis of Variance of Pre Test Scores of Source Credibility	27
7.	Pre Test Source Credibility Means for Subjects in Each of the Eight Treatments	28
8.	Critical Difference Test Between Pre Test Source Credibility Treatment Means	28
9.	Sign Tests for Large Samples to Test the Experimental Manipulation of Self Credibility and Source Credibility Within Individual Treatments	29
10.	Post Test Means for Subjects Assigned to Positive or Negative Feedback	30
11.	Summary Table of the Three Factor Analysis of Variance of Post Test Positive --- Negative Scores	31
12.	Post Test Positive --- Negative Means for Subjects in Each of the Eight Treatments	31
13.	Critical Difference Test Between Post Test Positive --- Negative Treatments Means	32
14.	Pre Test Minus Post Test Mean Differences for Subjects in the High Self Credibility, High Source Credibility, and Positive Feedback Condition	33
15.	Pre Test Minus Post Test Mean Differences for Subjects in the High Self Credibility, High Source Credibility, and Negative Feedback Condition	34

LIST OF TABLES (con't.)

TABLE		Page
16.	Pre Test Minus Post Test Differences for Subjects in the High Self Credibility, Low Source Credibility, and Positive Feedback Condition	35
17.	Pre Test Minus Post Test Mean Differences for Subjects in the High Self Credibility, Low Source Credibility, and Negative Feedback Condition	36
18.	Pre Test Minus Post Test Mean Differences for Subjects in the Low Self Credibility, High Source Credibility, and Positive Feedback Condition	36
19.	Pre Test Minus Post Test Mean Differences for Subjects in the Low Self Credibility, High Source Credibility, and Negative Feedback Condition	37
20.	Pre Test Minus Post Test Mean Differences for Subjects in the Low Self Credibility, Low Source Credibility, and Positive Feedback Condition	38
21.	Pre Test Minus Post Test Mean Differences for Subjects in the Low Self Credibility, Low Source Credibility, and Negative Feedback Condition	39
22.	Grand Summary of Pre --- Post Mean Differences for the Dependent Variables, Self Credibility, Source Credibility, and Task Difficulty	40
23.	Mean Number of Seconds Taken to Describe the Puzzle	41
24.	Summary Table of the Three Factor Analysis of Variance of Time Taken to Describe the Puzzle	42
25.	Critical Difference Test for Treatment Means on Time Taken to Describe the Puzzle	42
26.	Choice of Stopping Time and Self Credibility	43
27.	Choice of Stopping Time and Source Credibility	43
28.	Choice of Stopping Time and Feedback	43
29.	Mean Number of Information Questions Asked by Subjects in the Eight Treatments	44
30.	Summary Table of the Three Factor Analysis of Variance of Number of Information Questions Asked	45
31.	Critical Difference Test for Treatment Means on Number of Information Questions Asked	45

LIST OF FIGURES

FIGURE		Page
1.	Possible conditions of the independent variables . . .	7
2.	Summary of the hypotheses	13
3.	Geometric puzzle	17
4.	Top view of separation device	18
5.	Puzzle shown at end of experiment	19
6.	Scales for self and source credibility	20

LIST OF APPENDICES

	Page
APPENDIX A	62
Questionnaire	63
Positive Feedback Schedule	72
Negative Feedback Schedule	73
Diagrams of Practice Puzzles	74

• • • • •
• • • • •
• • • • •
• • • • •

CHAPTER I

RATIONALE AND HYPOTHESES

Rationale

An individual (A) enters any task oriented interaction with a set of expectations resulting from prior experience in similar situations. These expectations involve at least three major factors: first, A's expectations concerning the perceived difficulty or complexity of any task associated with the interaction; second, A's expectations concerning his ability to perform any task associated with the interaction; and third, A's expectations concerning the task abilities of other individuals in the verbal interaction situation. These three factors will hereafter be labeled Task Difficulty, Self Credibility, and Source Credibility.

During a particular interaction, individual A either maintains previous behavior that he has found rewarding or adjusts his behavior to meet the exigencies of the situation. If such an adjustment becomes necessary, it is facilitated by the response that the receiver(s) makes to the communication efforts of individual A. While these responses may be verbal or non-verbal, this experiment is concerned only with the adjustment of expectations resulting from verbal responses.

Receiver responses that lead to adjustment of source expectations and behavior are commonly labeled "feedback" (10). The concept "feedback" was first used in the field of cybernetics (28). Later it was extended as a central concept in theoretical formulations concerning more complex social behavior (13)(29). While these theories also provide for intra-personal feedback loops, this study is concerned with the effects of an

interpersonal feedback loop. Specifically, it focuses upon the adjustment of expectations and behavior on the part of individual A which result from feedback from another individual.

Murphy defines "feedback" as, "a verbal pattern [that] may be positive (maintaining) or negative (corrective)"(16). In an extensive review of the experimental manipulation of verbal behavior, Salzinger relates the concepts of feedback and reinforcement. He defines the values of the variable "reinforcement" as either:

Positive - any event produced by one individual after the behavior of another individual which strengthens that behavior.

Negative - any event, produced by an individual, the elimination or avoidance of which strengthens the behavior which eliminates or avoids it (23).

By integrating these two definitions, it is possible to define conceptually, for individual A, two values of the variable "feedback" as:

Positive Feedback - any verbal pattern produced by individual B after a communication by individual A which strengthens and maintains the behavior of A.

Negative Feedback - any verbal pattern produced by an individual B, after a communication by individual A, the elimination or avoidance of which strengthens the corrective communication behavior by individual A which eliminates or avoids it.

Research concerning the effects of feedback has dealt primarily with observable behavior. Leavitt and Mueller (11) found that feedback increases the accuracy with which information is transmitted. Salzinger, summarizing the extensive research on the effect of positive reinforcement (feedback) in verbal conditioning experiments, stated that "there have been very few studies on verbal behavior which report on the use of negative reinforcements" (23).

Aside from verbal conditioning research, there is a body of research dealing with the effects of negative feedback on encoding variables. Greenberg and Tannenbaum (8), using written responses, used two time measures and five grammar measures. In analyzing verbal responses, such dependent measures as total utterance and non-fluencies (14) disfluencies (25), voice volume, time spent encoding, and pauses and frequencies of occurrence of various types of speech hesitation phenomena (26) have been employed. Generally, this research demonstrates that negative feedback produces a significant effect on encoding variables.

It is probable, however, that such changes or adjustments in observable encoding behavior are accompanied by changes in cognitive expectations. Support for such an assumption is provided by Miller and Mischel. Miller varied all possible combinations of approval-neutral-disapproval conditions for a confederate first speaker and a naive second speaker. He suggests that - aside from the experimental effect on observable encoding variables - those subjects who received treatment inferior to that extended to the confederate also manifested cognitive change. Specifically, the questionnaire data for subjects in the inferior group revealed that they:

...were significantly more dissatisfied with their speeches following presentation...felt they had done a significantly poorer job of speaking in comparison with the first speaker... and had a significantly more unfavorable reaction toward the experimenter than subjects in the Same and Superior groups. (14)

Mischel investigated the relation between the public-private nature of the situation in which expectancy (goal) statements are elicited and the amount of change in related expectancy statements following negative feedback for performance on a first task. After giving his subjects eleven

points lower than what they expected on the first task, he found that the subjects lowered their expectancy statements for a second task. Subjects in the private situation lowered their expectancy statements significantly more than subjects in the public situation (15).

This research supports the assumption that changes in encoding behavior as the result of feedback are accompanied by cognitive change. It further supports the assumption that cognitive change may manifest itself in any or all of the three conceptually defined areas of Task Difficulty, Self Credibility, or Source Credibility.

Having examined the factor of Task Difficulty in the previously cited research by Miller and Mischel, a brief review of two bodies of research literature is necessary to develop conceptually the cognitive concepts Self Credibility and Source Credibility.

Research concerning the properties which a receiver perceives in a source has been categorized under the label "Source Credibility." This research has tended to conceptualize Source Credibility in various ways. A recent study attempted to provide empirical factors for conceptualizing and operationalizing Source Credibility. The study utilized:

1. Nine public sources, with no consideration of their relation to any subject matter.
2. Three personally-known sources: 'a person you know' whose 'opinion you respect'; neither 'respect nor disrespect'; and 'do not respect'.
3. Six public sources, placed in a 'relevant' or 'irrelevant' relation to a topic (12).

and submitted these sources to subjects for rating on 83 bipolar scales. Factor Analysis of the obtained ratings identified three major factors:

safety, qualification, and dynamism.¹ The study indicated that any measurement of source credibility involving qualification would be best represented by solution three, the solution with the six public sources related to a topic.

In a verbal interaction situation, the roles of source and receiver are interchangeable. From the position of individual A, it follows that if there are properties which he, as a receiver, perceives in a source, then he will perceive similar properties in himself when he plays the role of a source. For clarity I will refer to those properties which individual A, as a receiver, perceives in a source as Source Credibility and those similar properties which individual A, as a source, perceives in himself as Self Credibility.

The concept Self Credibility, as developed here, is not meant to be equated with what has been developed in the psychoanalytic literature (5) (30) as the individual's "self concept." An individual's "self concept" is viewed in this literature as a generalized perception of the self, a view of one's own self which holds across all interaction situations. Self Credibility, being developed conceptually from the literature concerning Source Credibility, is viewed as a portion of the individual's "self concept;" specifically, that portion which is related to the task the individual is engaged in during an interaction.

It is further proposed that when applied to a specific social

¹Examples of scales identifying each factor are (a) safety: stable-unstable, reasonable-unreasonable (b) qualification: educated-uneducated, trained-untrained (c) dynamism: bold-timid, energetic-tired.

situation, the concept "self esteem" can be viewed as "self credibility." The research literature suggests that the "self esteem" of an individual is a significant variable in situations involving social interaction. Stotland and Cottrell, using a Q Sort as a measure of self esteem, found that, "persons low in self esteem are more subject to social influence than persons high in self esteem" (27). Rosenbaum and deCharms, measuring residual hostility toward an attacker, found that high self esteem subjects were not very strongly instigated toward aggression and showed some insensitivity to cues presented by other persons (21). Cohen indicated that persons with high self esteem are characterized by tendencies to protect themselves from negative self evaluation (4).

Generalizing the cited research on self-esteem to a verbal interaction situation, it is proposed that any adjustment of cognitive expectations concerning individual A's perceived Self Credibility and the credibility of the source of feedback will be a function of the relationship between the two and the nature of the feedback individual A receives from the source.

In terms of individual A, four variables which effect a verbal interaction situation have been conceptually defined. These four variables are Task Difficulty, Self Credibility, Source Credibility, and Feedback. While each may be viewed as a continuous variable, Task Difficulty takes the extreme values of difficult and easy, Self Credibility and Source Credibility the extreme values of high and low, and Feedback the extreme values of positive and negative.

Given these extreme values, the independent variables of Self Credibility, Source Credibility, and Feedback yield eight possible

conditions which individual A can perceive as existing. These possible conditions are summarized in Figure 1.

Thus far it has been suggested that individual A uses the feedback he receives in a verbal interaction situation as a mechanism for adjustment, and that this adjustment subsequently is manifested in both observable encoding behavior and cognitive change. Two questions remain to be answered: first, under what conditions of Self Credibility, Source Credibility, and Feedback can cognitive change be expected; and second, what predictions can be made relating to the specific forms this cognitive change may take?

Perceived Self Credibility	Nature of Feedback	Perceived Credibility of the Source of Feedback
High	Pos.	High
High	Neg.	High
High	Pos.	Low
High	Neg.	Low
Low	Pos.	High
Low	Neg.	High
Low	Pos.	Low
Low	Neg.	Low

"Fig. 1. Possible conditions of the independent variables."

For example; can individual A, who perceives himself as highly credible, be expected to experience a cognitive readjustment if he receives negative feedback from a low credible source? And, if so, will this readjustment

take the form of changes in his perceived Self Credibility, changes in perceived Source Credibility, changes in perceived Task Difficulty, or changes in some combination of these three variables?

In the literature of psychology, some light is thrown on these questions by a group of theories commonly listed under the general rubric of "balance theories" (7)(9)(17)(19). These theories have been reviewed in a number of publications (3)(18). While they differ in certain of their elements, they share a set of common assumptions. Bettinghaus summarizes these assumptions as follows:

1. All cognitive balance theories assume that the individual places values on the objects and signs which he perceives.
2. All balance theories postulate that when two or more objects are placed within the same cognitive or perceptual field, the field may be described in terms of the values which the individual originally placed on the objects within the field.
3. All balance theories hypothesize that when the values held for objects within the same perceptual or cognitive field are internally consistent, a state of balance exists, and the individual will do nothing to change the values he holds toward the objects.
4. All balance theories assume that when the values placed on objects within the perceptual or cognitive field are not consistent for the individual, a state of imbalance exists, and an individual will take steps to restore balance to the perceptual or cognitive field.
5. All balance theories hypothesize that the strength of the pressures to reduce imbalance are a direct function of the magnitude of the imbalance (1).

While all of these assumptions are germane to the present study, assumption four is of special significance. This assumption indicates that cognitive change can be expected when the relationships between cognitive elements are not consistent, or balanced. The relationship

between the cognitive elements, Self Credibility, Source Credibility, and Task Difficulty has been discussed above. When an individual receives feedback which produces inconsistency among these cognitive elements, these elements can be expected to change. As Festinger states:

The simplest definition of dissonance (Festinger's term for cognitive inconsistency), can, perhaps, be given in terms of a person's expectations. In the course of our lives we have all accumulated a large number of expectations about what things go together and what things do not. When such an expectation is not fulfilled, dissonance occurs (6).

Among the various balance theories presently found in the literature, the theoretical formulation which most closely approximates the experimental situation developed in this study is that of Newcomb (17). Newcomb is the only balance theorist to incorporate an interpersonal dimension in his formulation. In Newcomb's system the communicative act occurs when:

A communicates to B about some event, X. The important variables are A's orientation toward X, A's orientation toward B, B's orientation toward X, and B's orientation toward A, each such orientation conceived as being potentially positive or negative in sign (18).

The cognitive elements of an interaction situation, involving a task, described in this study, closely parallel the elements described by Newcomb, A's orientation toward X can be equated with the variable Task Difficulty. A's orientation toward B can be equated with the variable Source Credibility. Both B's orientation toward X and A can be equated with A's perception of the feedback he receives from B. The only place where a close parallel cannot be established is the area of Self Credibility. Neither Newcomb nor the other balance theorists explicitly incorporate such a variable into their theoretic system.

Newcomb states that when the relationship between the elements is not consistent for the individual, an imbalanced state exists and the individual will make an effort to restore balance. Restoration of balance, however, may be achieved by several different means. In the interaction situation of interest in this study, several specific mechanisms may be suggested by which individual A can restore balance. For instance, if A has high perceived Self Credibility regarding a particular task, and if he receives negative feedback regarding his performance on the task from a high credible source, cognitive imbalance should result. Here A has at least four avenues available for restoring balance: he may subsequently lower his perception of his own Self Credibility, he may subsequently lower his perception of the credibility of the source, he may subsequently perceive the task as more difficult, or he may change the value of more than one of these three variables. Since the general assumptions of balance theories provide no means for specifying which of these alternatives will be chosen, it is felt that one of the major contributions of this study will be to provide information on this problem for interaction situations involving various combinations of the values of the independent variables Self Credibility, Source Credibility, and Feedback.

Given the above limitation, the hypotheses that follow are offered with reservation and are to be regarded as tentative predictions derived from the general assumptions of balance theories. The predictions are based on the stipulation of those interaction situations in which the cognitive elements described in this study are consistent and the stipulation of those interaction situations in which the cognitive elements are inconsistent. The direction of change in the cognitive elements, in order

to restore balance, is also predicted.

Hypotheses

The following hypotheses were investigated in this study:

1. Under conditions of High Self Credibility and Positive Feedback from a High Credible Source, no cognitive imbalance will result, and; therefore there will be no cognitive change in perceived Self Credibility, perceived Source Credibility, or perceived Task Difficulty.
2. Under conditions of High Self Credibility and Negative Feedback from a High Credible Source, cognitive imbalance will result. Reduction of this imbalance will take the form of a decrease in perceived Source Credibility and an increase in perceived Task Difficulty.
3. Under conditions of High Self Credibility and Positive Feedback from a Low Credible Source, no cognitive imbalance will result, and; therefore, there will be no cognitive change in perceived Self Credibility, perceived Source Credibility, or perceived Task Difficulty.
4. Under conditions of High Self Credibility and Negative Feedback from a Low Credible Source, cognitive imbalance will result. Reduction of this imbalance will take the form of a decrease in perceived Source Credibility and an increase in perceived Task Difficulty.

5. Under conditions of Low Self Credibility and Positive Feedback from a High Credible Source, cognitive imbalance will result. Reduction of this imbalance will take the form of an increase in perceived Self Credibility and a decrease in perceived Task Difficulty.

6. Under conditions of Low Self Credibility and Negative Feedback from a High Credible Source, no cognitive imbalance will result, and; therefore, there will be no cognitive change in perceived Self Credibility, perceived Source Credibility, or perceived Task Difficulty.

7. Under conditions of Low Self Credibility and Positive Feedback from a Low Credible Source, cognitive imbalance will result. Reduction of this imbalance will take the form of a decrease in perceived Task Difficulty.

8. Under conditions of Low Self Credibility and Negative Feedback from a Low Credible Source, no cognitive imbalance will result, and; therefore, there will be no change in perceived Self Credibility, perceived Source Credibility, and perceived Task Difficulty.

The stated hypotheses are summarized in Figure 2.

<u>Assigned condition</u>			Predicted Charge in Dependent Variables		
SLF	SOC	FB	SLF	SOC	TD
High	High	Positive	0	0	0
High	High	Negative	0	-	+
High	Low	Positive	0	0	0
High	Low	Negative	0	-	+
Low	High	Positive	+	0	-
Low	High	Negative	0	0	0
Low	Low	Positive	0	0	-
Low	Low	Negative	0	0	0

"Fig. 2. Summary of the hypotheses."

CHAPTER II

METHOD

Subjects

Pretesting data indicated that the sex of the subject may significantly affect the interaction patterns. Because of this possibility, only female subjects were utilized in this experiment. Eighty female subjects, all undergraduate students enrolled in the Communication 100 class at Michigan State University, volunteered to participate in the experiment. While the experimenter was an instructor in the course, the subjects had no knowledge of the nature of the experiment. Subjects were randomly assigned to treatment cells in groups of eight.

Procedure

The confederates employed in the experiment were four undergraduate males. Each confederate received training during the pretesting period and again prior to the actual experiment. To minimize variability, assignment of the four confederates was counter-balanced across all treatments. Each confederate was paired with a minimum of two subjects in each cell, and a maximum of three subjects in four of the eight cells. Each confederate interacted with twenty subjects, ten positively and ten negatively.

Three people were involved in the experimental procedure: the subject (A), a confederate (B) and the experimenter (E).

After A and B were seated, E read this statement to them:

I would like to ask each of you not to discuss this study with any of your classmates or friends, as many of them will be participating in it. Later in the quarter I will be coming into each of your classes to explain the results of the study. O.K.?

A and B were then given questionnaires, and after reading the first page were asked to answer the questions on page two dealing with age, sex, year in school, and other biographical data. The complete questionnaire may be found in Appendix A.

After indicating that they were ready, A and B were read this statement.

The task you are about to engage in involves cooperation between both of you in putting together a geometric puzzle. In this particular part of the experiment subject A will be describing the puzzle while subject B will actually be putting it together. Our experience has shown us that people do better at this task if they are given a chance to practice, so we have provided for a short acclimation and training period for each of you before we start the actual task. Subject B (confederate), if you will take this card to Mr. Weston in room 319, the first door to your right, he will give you some training in putting the pieces together. Subject A (subject), if you will stay here I will give you some training in describing a similar puzzle.

After B left the room, A was given one or two similar puzzles to describe. (Diagrams of these puzzles are contained in Appendix A.)

This particular task was chosen for two reasons. First, it could be assumed that the subjects would have had very little prior experience with a task of this nature. This would reduce any contaminating effects caused by prior experience, and would allow for more effective manipulation of the independent variables of Self and Source Credibility. Second, the task was of such a nature that it could be assumed that each subject would approach the description of the puzzle on a piece by piece basis.

This factor allowed for construction of a feedback schedule where feedback was provided after the subject had described the position of each piece, thus allowing for more effective manipulation of the independent variable of Feedback. Pretesting data indicated that both of these assumptions were valid.

A then participated in the practice period with E. Irrespective of A's performance during the practice period, A was stopped after five minutes and thirty seconds. Depending upon the random assignment of A, one of the two following statements was read to him in a conversational tone of voice.

If A were assigned to a condition involving high Self Credibility:

You have included many of the details. You do real well at explaining the puzzles, much better than most people do. We don't have any more time to practice.

If A were assigned to a condition involving low Self Credibility:

You have missed many of the details. You don't do too well at explaining the puzzles. Most people do better. However, we don't have any more time to practice.

After precisely six minutes had elapsed, B returned. B was seated and asked by E to return the card from Mr. Weston which had previously been given by E to B. After receiving the card from B, E read one of the following statements aloud in a conversational tone of voice.

If A were assigned to a condition involving high Source Credibility:

Oh, I see that Mr. Weston says that you do real well at putting together the pieces.

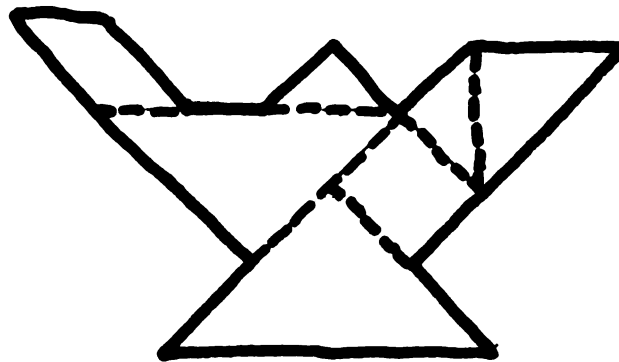
If A were assigned to a condition involving low Source Credibility:

Oh, I see that Mr. Weston says that you don't do too well at putting together the pieces.

After hearing the statement, the confederate (B) replied with a conversational "Yeah".

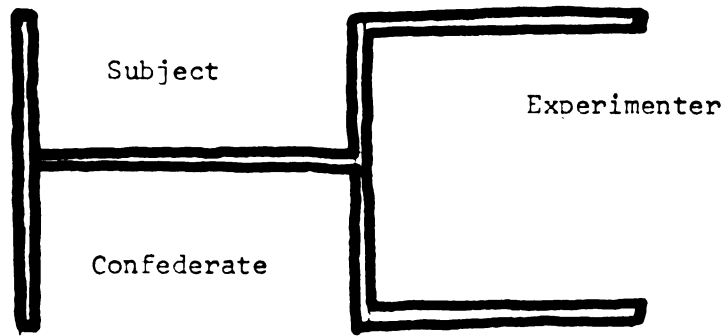
Both A and B were then asked to turn the page of the questionnaire. After reading a brief description of the task and an explanation of how to mark the scales, A completed the pre measures of Self Credibility, Source Credibility, and Task Difficulty.

A was then given the geometric puzzle in Figure 3 to describe to B.



"Fig. 3. Geometric puzzle."

The interaction involving the description of the puzzle by A took place in a large, quiet room. To control the possible communication effects of having A and B visible to each other, a device was constructed which separated the subject, confederate, and the experimenter. This device was 32 inches high and was placed on a large table. A diagram of the device may be found in Figure 4.

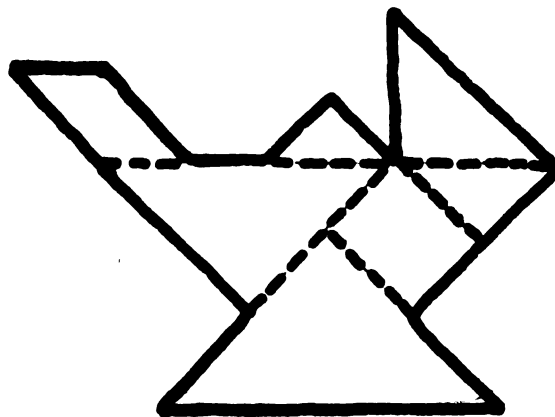


"Fig. 4. Top view of separation device."

During the interaction, B responded to the efforts of A to describe the puzzle by using a pre-arranged positive or negative feedback schedule. Appendix A contains copies of the schedules. The positive and negative feedback schedules were revised slightly as a result of pretesting. Every attempt was made to equate the strength of the two schedules. Pretesting data indicated that subjects perceived the two schedules as positive or negative. Of twenty pretest subjects, eighteen responded on the positive-negative scale consistent with the treatment to which they were assigned, ($p = < .05$). Confederates were instructed to adhere to the schedule as rigidly as possible. Where it was necessary to respond to questions by the subject, confederates were instructed to reply with a positive answer if the subject was assigned to a positive treatment group, and a noncommittal answer if the subject was assigned to a negative treatment group. During the interaction, E kept a record of the amount of time it took each subject to explain the puzzle. Additional measures of the subject's choice of stopping time and the number of information questions directed to B by A were also obtained. E remained silent during the entire interaction.

Upon completion of the interaction, post measures of Self Credibility, Source Credibility, and Task Difficulty, were obtained from each subject.

Before being excused, A and B were shown the puzzle and the card containing the description. The puzzle in Figure 5 was presented to all subjects. The puzzle was presented with two minor errors for two reasons. First, it was done to relieve any feelings of inadequacy which may have developed in subjects under negative feedback conditions. Subsequent written remarks by many of the subjects under negative feedback conditions indicated that the puzzle shown at the conclusion of the interaction served this purpose. Secondly, it was decided that the completed puzzle with a few minor mistakes was a reasonable expectation for all subjects. A and B were then asked again not to reveal details of the study to friends or classmates and were excused.



"Fig. 5. Puzzle shown at end of experiment."

Dependent Variables

Measures required were pre-test and post-test scores of: (1) Self Credibility, (2) Source Credibility, and (3) Task Difficulty. In addition, measures of the amount of time to complete the task, the subject's

choice of stopping time, and information questions asked by the subject were utilized.

Self and Source Credibility - The measuring instrument for these dependent measures was constructed on the basis of the factor analytic study by Lemert (12) mentioned above. Ten scales from the qualification factor were chosen for pretesting. Pretest data indicated that three of the scales did not discriminate adequately; consequently they were eliminated from the final analysis. The remaining seven scales were utilized as a measure of Self and Source Credibility. Figure 6 provides a listing of these seven scales, along with the factor loading for each scale.

Qualification Scales	Factor Loadings
expert---ignorant	.90
competent---incompetent	.88
capable---incapable	.87
knowledgeable---unknowledgeable	.87
efficient---inefficient	.78
successful---unsuccessful	.76
confident---unsure	.59

"Fig. 6. Scales for self and source credibility."

The seven scales were randomly distributed on the pre and post questionnaires and were systematically reversed to eliminate order effects. Each subject's score was obtained by asking her to mark each scale in relation to the following statements:

For pre-test Self Credibility:

"Myself, in relation to the task about to be performed."

For pre-test Source Credibility:

"Subject B, the person cooperating with you, in relation to the task about to be performed."

For post-test Self Credibility:

"Myself, in relation to the task just completed."

For post-test Source Credibility:

"Subject B, the person cooperating with you, in relation to the task just completed."

Each subject's score was arrived at by summing across the seven scales. The mean of the subject's raw pre-test and post-test scores was used in the analyses to test the hypotheses.

Task Difficulty--Three scales utilizing the polar adjectives, easy---difficulty, simple---complex, and clear---unclear, were employed to measure Task Difficulty. The scales were randomly distributed on the pre and post questionnaires and were systematically reversed to eliminate order effects. Each subject's score was obtained by asking her to mark each scale in relation to the following statements:

For pre-test Task Difficulty:

"Respond to the following scales in relation to how you perceive the cooperative task in which you are about to engage."

For post-test Task Difficulty:

"Respond to the following scales in relation to how you perceive the cooperative task in which you have just engaged."

Each subject's score was arrived at by summing across the three scales. The mean of the subject's raw pre-test and post-test scores was used in the analyses to test the hypotheses.

In addition, a series of six scales, appearing under the heading "Information," were included in the questionnaire. The primary purpose of these scales was not to provide data bearing on the hypotheses, but rather to provide a means for assessing the effectiveness of the manipulation of the independent variable of feedback. The six scales utilizing the polar adjectives, intimate---remote, good---bad, positive---negative, sensible---not sensible, clear---not clear, and helpful---not helpful, were randomly distributed on the pre and post questionnaires and were systematically reversed to eliminate order effects. Each subject was asked to mark each scale in relation to the following statements:

For pre-test Information:

"Respond to the following scales in relation to the
information you expect to receive from your partner."

For post-test Information:

"Respond to the following scales in relation to the
information you received from your partner."

The positive---negative scale was chosen to test the experimental manipulation of feedback, because pretesting data indicated that it represented most accurately the subjects perception of the feedback they had received.

The measures for Self Credibility and Source Credibility were on separate pages of the questionnaire. The measures for Task Difficulty and Information were combined on one page. Pages were systematically rotated to counter-balance any effects which might have been produced by having all the subjects scoring the dependent measures in the same order.

The additional measures kept by the experimenter during the interaction were:

Time to complete the task - Two measures of time taken to complete the task were obtained. Timing began when the subject was given the puzzle. The elapsed time was recorded when the subject had completed describing the puzzle for the first time, and again when the subject decided to stop work on the puzzle.

Subject choice of stopping time - After the subject had completely described the puzzle for the first time, she was afforded the opportunity to stop or to go over the puzzle again. Measures of the choice of stopping time by the subject were kept by the experimenter. A "1" was recorded if the subject stopped at the first opportunity, and a "2" was recorded if the subject stopped other than at the first opportunity. Only one chose to go over the puzzle more than two complete times.

Information questions asked by the subject - The experimenter kept a record of the number of interrogative attempts by the subject to obtain information from the confederate.

CHAPTER III

RESULTS

This chapter contains an analysis of the data to test the efficacy of the experimental manipulation of the independent variables and an analysis of the data to test the hypotheses.

Manipulation of the Independent Variables

Several analyses were conducted to test the efficacy of the experimental manipulation of Self Credibility, Source Credibility and Feedback. Following is a summary of the results of these analyses.

Self Credibility

The pre test means for subjects in the High and Low Self Credibility treatments, when collapsed across all conditions of Source Credibility and Feedback, are found in Table 1.²

Table 1. Pre Test Means for Subjects Assigned
to High and Low Self Credibility

Assigned to:	Mean
High Self Credibility	3.28
Low Self Credibility	3.93

Table 2 contains a summary of the three factor analysis of variance, utilized to test the significance of these data.

²When observing the means in all of the analyses in this chapter, as the mean approaches the value of 0.00, this is indicative of a high value of the variable under consideration. As the mean approaches the value of 7.00, this is indicative of a low value of the variable under consideration.

Table 2. Summary of the Three Factor Analysis of Variance of Pre Test Scores of Self Credibility

<u>Source of variance</u>	<u>df.</u>	<u>MS</u>	<u>F</u>
Between			
Self credibility (A)	1	8.45	7.26*
Source credibility (B)	1	.80	<1.00
Feedback (C)	1	.01	<1.00
A/B	1	.41	<1.00
A/C	1	.07	<1.00
B/C	1	.54	<1.00
A/B/C	1	.54	<1.00
Within error	72	1.16	

* = $p < .05$ two tailed

The significant main effect on Self Credibility supports the experimental procedures used to establish conditions of High and Low Self Credibility.

The Self Credibility means for subjects in the eight treatment conditions may be found in Table 3. It can be seen that the means for subjects in the four treatments utilizing High Self Credibility are consistently higher than those for subjects in the four Low Self Credibility

Table 3. Pre Test Self Credibility Means for Subjects in Each of the Eight Treatments

	<u>HSOC- PFB</u>	<u>HSOC- NFB</u>	<u>LSOC- PFB</u>	<u>LSOC- NFB</u>
High Self Credibility	3.15	3.07	3.50	3.41
Low Self Credibility	4.05	3.76	3.79	4.14

treatments. A critical difference technique was utilized to make each of the 28 possible comparisons among means. Table 4 contains a summary of these comparisons.

It can be seen that the significant main effect in Table 2 is caused primarily by the Low Self Credibility, Low Source Credibility, Negative Feedback treatment and the High Self Credibility, High Source Credibility, Negative Feedback treatment. Even though not all of the High and Low Self Credibility treatments differ significantly, the

Table 4. Critical Difference Test Between Pre Test Self Credibility Treatment Means

<u>Assigned condition</u>											
<u>SLF</u>	<u>SOC</u>	<u>FB</u>	<u>H-H-P</u>	<u>H-H-N</u>	<u>H-L-P</u>	<u>H-L-N</u>	<u>L-H-P</u>	<u>L-H-N</u>	<u>L-L-P</u>	<u>L-L-N</u>	
H	H	P	-----	-.08	+.35	+.26	+.90	+.61	+.64	+.99*	
H	H	N		----	+.42	+.34	+.98*	+.69	+.72	+1.07*	
H	L	P			----	-.09	+.55	+.26	+.29	+.64	
H	L	N				----	+.64	+.35	+.38	+.53	
L	H	P					----	-.29	-.26	+.09	
L	H	N						----	+.03	+.38	
L	L	P							----	+.35	
L	L	N								----	

* = $p < .05$ critical difference = .96

consistently higher means for subjects in the former conditions indicate relatively successful manipulation of the variable of Self Credibility.

Source Credibility

The pre test means for subjects in the High and Low Source Credibility treatments, when collapsed across all conditions of Self Credibility and Feedback, are found in Table 5.

Table 5. Pre Test Means for Subjects Assigned to High or Low Source Credibility

Assigned to:	Mean
High Source Credibility	2.28
Low Source Credibility	3.45

Table 6 contains a summary of the three factor analysis of variance, utilized to test the significance of these data.

Table 6. Summary Table of the Three Factor Analysis of Variance of Pre Test Scores of Source Credibility

<u>Source of variation</u>	<u>df.</u>	<u>MS</u>	<u>F</u>
Between			
Self Credibility (A)	1	1.47	3.45
Source Credibility (B)	1	7.72	18.09*
Feedback (C)	1	.05	< 1.00
A/B	1	.41	< 1.00
A/C	1	.41	< 1.00
B/C	1	.98	2.30
A/B/C	1	.10	< 1.00
Within error	72	.43	

* = $p < .05$ two tailed

The significant main effect on Source Credibility supports the experimental procedures used to establish conditions of High and Low Source Credibility.

The Source Credibility means for subjects in the eight treatment conditions may be found in Table 7. It can be seen that the means for

Table 7. Pre Test Source Credibility Means for
Subjects in Each of the Eight Treatments

	<u>HSLF- PFB</u>	<u>HSLF- NFB</u>	<u>LSLF- PFB</u>	<u>LSLF- NFB</u>
High Source Credibility	3.05	3.01	2.42	2.81
Low Source Credibility	3.68	3.34	3.49	3.29

subjects in the treatments utilizing High Source Credibility are consistently higher than the means for subjects in the four Low Source Credibility treatments. A critical difference technique was utilized to make each of the 28 possible comparisons among means. Table 8 contains a

Table 8. Critical Difference Test Between Pre Test Source Credibility
Treatment Means

<u>Assigned condition</u>										
<u>SLF</u>	<u>SOC</u>	<u>FB</u>	<u>H-H-P</u>	<u>H-H-N</u>	<u>L-H-P</u>	<u>L-H-N</u>	<u>H-L-P</u>	<u>H-L-N</u>	<u>L-L-P</u>	<u>L-L-N</u>
H	H	P	----	-.04	-.63*	-.24	+.63*	+.29	+.44	+.24
H	H	N		----	-.59*	-.20	+.67*	+.33	+.48	+.28
L	H	P			----	+.39	+1.26*	+.92*	+1.07*	+.87*
L	H	N				----	+.87*	+.53	+.68*	+.48
H	L	P					----	-.34	-.19	-.39
H	L	N						----	+.15	-.05
L	L	P							----	-.20
L	L	N								----

* = $p < .05$ two tailed critical difference = .59

summary of these comparisons.

Investigation of Table 8 indicates that eight of the ten significant differences are between High and Low Source Credibility conditions, providing support for the effectiveness of the experimental manipulation of Source Credibility.

Having established that the experimental manipulation of Self Credibility and Source Credibility was generally successful, two Sign Tests were utilized to establish the efficacy of the manipulation of Self Credibility and Source Credibility within each individual treatment. The results of these Sign Tests are found in Table 9.

Table 9. Sign Tests for Large Samples to Test the Experimental Manipulation of Self Credibility and Source Credibility Within Individual Treatments

Assigned conditions of Self Credibility and Source Credibility	<u>N</u>	<u>z</u>	<u>p</u>
SAME	33	1.04	<.28
DIFFERENT	36	2.83	<.01 2T

It can be seen from Table 9 that when subjects were assigned to different conditions of Self Credibility and Source Credibility, they reflected these differences in their pre test Self Credibility and Source Credibility scores, at a greater than chance frequency. On the other hand, when subjects were assigned to the same Self Credibility and Source Credibility conditions no significant differences in their pre test Self Credibility and Source Credibility scores were obtained.

Feedback

Finally, to test the experimental manipulation of Feedback, the post test positive-negative scores for subjects in the eight treatments were analyzed. These means, when collapsed over all conditions of Self Credibility and Source Credibility, are found in Table 10.

Table 10. Post Test Means for Subjects Assigned
to Positive or Negative Feedback

<u>Assigned to:</u>	<u>Mean</u>
Positive Feedback	1.60
Negative Feedback	4.63

Table 11 contains a summary of the three factor analysis of variance, utilized to test the significance of these data.

The significant main effect for Feedback supports the experimental procedures used to manipulate the variable Feedback.

The Positive -- Negative means for subjects in the eight treatment conditions can be found in Table 12. It can be seen that the means for subjects in the four treatments utilizing Positive Feedback are consistently higher than those for subjects in the Negative Feedback treatments. A critical difference technique was utilized to make each of the 28 possible comparisons among means.

Table 11. Summary Table of the Three Factor Analysis of Variance of Post Test Positive -- Negative Scores

<u>Source of variation</u>	<u>df.</u>	<u>MS</u>	<u>F</u>
Between			
Self Credibility (A)	1	1.01	< 1.00
Source Credibility (B)	1	.11	< 1.00
Feedback (C)	1	183.01	118.38*
A/B	1	.61	< 1.00
A/C	1	.11	< 1.00
B/C	1	1.01	< 1.00
A/B/C	1	2.81	1.81
Within error	72	1.55	

* = $p < .05$ two tailed

Table 12. Post Test Positive -- Negative Means for Subjects in Each of the Eight Treatments

	<u>HSLF- HSOC</u>	<u>HSLF- LSOC</u>	<u>LSLF- HSOC</u>	<u>LSLF- LSOC</u>
Positive Feedback	1.70	1.20	1.80	1.70
Negative Feedback	4.20	4.29	4.90	4.50

Table 13 contains a summary of these comparisons.

Table 13 indicates that all possible comparisons between Positive and Negative Feedback conditions differ significantly in the predicted direction. Thus, the experimental manipulation of Feedback was completely successful.

Hypotheses of the Study

The analyses reported below were conducted to test the hypotheses

of the study; i.e., those hypotheses specifying the cognitive changes occurring in each of the eight treatment groups. Since the hypotheses concerned changes within cells, the t test for related samples was employed to test differences between pre test and post test means.

Table 13. Critical Difference Test Between Post Test Positive --
Negative Treatment Means

<u>Assigned condition</u>			<u>H-H-P</u>	<u>H-L-P</u>	<u>L-H-P</u>	<u>L-L-P</u>	<u>H-H-N</u>	<u>H-L-N</u>	<u>L-H-N</u>	<u>L-L-N</u>
<u>SLF</u>	<u>SOC</u>	<u>FB</u>								
H	H	P	----	-.50	+.10	.00	+2.50*	+3.20*	+3.20*	+2.80*
H	L	P		----	+.60	+.50	+3.00*	+3.70*	+3.70*	+3.30*
L	H	P			----	-.10	+2.40*	+2.90*	+2.90*	+2.70*
L	L	P				----	+2.50*	+3.20*	+3.20*	+2.80*
H	H	N					----	+ .09	+.70	+.30
H	L	N						----	+.79	+.21
L	H	N							----	-.40
L	L	N								----

* = $p < .05$ two tailed Critical Difference = 1.18

In all cases where predictions were made concerning direction of change, one tailed tests of significance were employed. In those cases where no change was predicted, two tailed tests of significance were utilized.

Hypothesis 1

Under conditions of High Self Credibility and Positive Feedback from a High Credible Source, no cognitive imbalance will result, and; therefore, there will be no change in perceived Self Credibility, Source Credibility, or Task Difficulty.

Table 14 contains a summary of the mean differences on each of the three dependent measures for subjects in the High Self Credibility, High Source Credibility, Positive Feedback condition. It can be seen that the data generally fail to support the hypothesis of no change. On only one

Table 14. Pre Test Minus Post Test Mean Differences for Subjects in the High Self Credibility, High Source Credibility, and Positive Feedback Condition

	Pre- mean	Post- mean	D	<u>t</u>	<u>p</u>
SLF	3.15*	2.67**	+.48	2.61	<.05-2T
SOC	3.05	1.75	+1.30	10.59	<.01-2T
TD	3.86	3.80	-.06***	.22	N.S.

*Means are based on a seven point scale, i.e., good = 1, bad = 7.

**A post test mean which is lower than a pre test mean indicates an increase in the dependent measure.

***Task difficulty signs have been reflected to make them consistent with the other dependent measures. A plus (+) indicates an increase in task difficulty while a minus (-) indicates a decrease in task difficulty.

of the dependent variables, Task Difficulty, did no significant change occur. Perceived Self Credibility and perceived Source Credibility increased significantly on the post test measurement. Thus, contrary to prediction, it appears that subjects in this condition made a number of cognitive adjustments as a result of the interaction in which they engaged.

Hypothesis 2

Under conditions of High Self Credibility and Negative Feedback from a High Credible Source, cognitive imbalance will result. Reduction of this

imbalance will take the form of a decrease in perceived Source Credibility and an increase in perceived Task Difficulty.

Table 15 contains a summary of the mean differences on each of the dependent measures for subjects in the High Self Credibility, High Source Credibility, and Positive Feedback condition. It can be seen that

Table 15. Pre Test Minus Post Test Mean Differences for Subjects in the High Self Credibility, High Source Credibility, and Negative Feedback Condition

	Pre- mean	Post- mean	D	<u>t</u>	<u>p</u>
SLF	3.07	3.48	-.41	1.87	N.S.
SOC	3.01	3.30	-.29	1.28	N.S.
TD	3.76	4.50	+.74	4.12	<.01-1T

the data support the predicted change in Task Difficulty. Contrary to prediction, Source Credibility did not change significantly.

Hypothesis 3

Under conditions of High Self Credibility and Positive Feedback from a Low Credible Source, no cognitive imbalance will result, and; therefore, there will be no cognitive change in perceived Self Credibility, perceived Source Credibility, or perceived Task Difficulty.

Table 16 contains a summary of the mean differences on each of the dependent measures for subjects in the High Self Credibility, Low Source Credibility, and Positive Feedback condition. It can be seen that the data fail to support the hypothesis of no change. Perceived Self Credibility and perceived Source Credibility increased significantly on

Table 16. Pre Test Minus Post Test Differences for Subjects in the High Self Credibility, Low Source Credibility, and Negative Feedback Condition

	Pre- mean	Post mean	D	<u>t</u>	<u>p</u>
SLC	3.50	2.37	+1.13	4.93	<.01-2T
SOC	3.68	1.78	+1.90	9.40	<.01-2T
TD	3.70	2.93	-.77	3.31	<.05-2T

the post test measure. Perceived Task Difficulty decreased significantly on the post test measure. Thus, contrary to prediction, it appears that subjects in this condition made a number of cognitive adjustments as a result of the interaction in which they engaged.

Hypothesis 4

Under conditions of High Self Credibility and Negative Feedback from a Low Credible Source, cognitive imbalance will result. Reduction of this imbalance will take the form of a decrease in perceived Source Credibility and an increase in perceived Task Difficulty.

Table 17 contains a summary of the mean differences on each of the dependent measures for subjects in the High Self Credibility, Low Source Credibility, and Negative Feedback condition. It can be seen that the data support the hypothesis. Perceived Source Credibility significantly decreased on the post test measurement while perceived Task Difficulty showed a significant increase. Thus, it appears that subjects in this condition made the predicted cognitive adjustments as a result of the interaction in which they engaged.

Table 17. Pre Test Minus Post Test Mean Differences for Subjects in the High Self Credibility, Low Source Credibility, and Positive Feedback Condition

	Pre- mean	Post-mean	D	<u>t</u>	<u>p</u>
SLC	3.41	3.95	-.74	1.30	N.S.
SOC	3.34	4.08	-.74	5.15	<.01-1T
TD	4.00	4.86	+.86	2.49	<.05-1T

Hypothesis 5

Under conditions of Low Self Credibility and Positive Feedback from a High Credible Source, cognitive imbalance will result. Reduction of this imbalance will take the form of an increase in perceived Self Credibility and a decrease in perceived Task Difficulty.

Table 18 contains a summary of the mean differences on each of the dependent measures for subjects in the Low Self Credibility, High Source Credibility, Positive Feedback condition. It can be seen that the data generally support the predictions made. Perceived Self Credibility

Table 18. Pre Test Minus Post Test Mean Differences for Subjects in the Low Self Credibility, High Source Credibility, and Positive Feedback Condition

	Pre-mean	Post- mean	D	<u>t</u>	<u>p</u>
SLF	4.05	3.38	+.67	3.69	<.01-1T
SOC	2.42	1.90	+.52	2.57	<.05-2T
TD	4.46	3.56	-.90	1.86	<.05-1T

significantly increased on the post test measurement, while perceived Task Difficulty showed a significant decrease. Contrary to prediction, perceived Source Credibility increased significantly on the post test measurement. It appears that, generally as predicted, subjects made a number of cognitive adjustments as a result of the interaction in which they engaged.

Hypothesis 6

Under conditions of Low Self Credibility and Negative Feedback from a High Credible Source, no cognitive imbalance will result, and; therefore, there will be no cognitive change in perceived Self Credibility, perceived Source Credibility, or perceived Task Difficulty.

Table 19 contains a summary of the mean differences on each of the three dependent measures for subjects in the Low Self Credibility, High Source Credibility, Negative Feedback condition. It can be seen that the

Table 19. Pre Test Minus Post Test Mean Differences for Subjects in the Low Self Credibility, High Source Credibility, and Negative Feedback Condition

	Pre- mean	Post- mean	D	<u>t</u>	<u>p</u>
SLF	3.76	5.31	-1.55	3.80	<.01-2T
SOC	2.81	3.66	-.85	2.45	<.05-2T
TD	4.17	4.73	+.56	2.44	<.05-2T

data fail to support the hypothesis of no change. Both perceived Self Credibility and perceived Source Credibility decreased significantly while perceived Task Difficulty showed a significant increase. It appears that this condition created more cognitive imbalance than expected, and thus

more cognitive change by the subjects who engaged in the interaction.

Hypothesis 7

Under conditions of Low Self Credibility and Positive Feedback from a Low Credible Source, cognitive imbalance will result. Reduction of this imbalance will take the form of a decrease in perceived Task Difficulty.

Table 20 contains a summary of the mean differences on each of the dependent measures for subjects in the Low Self Credibility, Low Source Credibility, Positive Feedback condition. It can be seen that the data generally support the prediction of cognitive change. Perceived Task Difficulty decreased significantly, as predicted. Contrary to predictions, perceived Source Credibility increased significantly. The predicted non-significant change in perceived Self Credibility was supported.

Table 20. Pre Test Minus Post Test Mean Differences for Subjects in the Low Self Credibility, Low Source Credibility, and Positive Feedback Condition

	Pre- mean	Post- mean	D	<u>t</u>	<u>p</u>
SLF	3.79	2.93	+.86	2.19	N.S.
SOC	3.49	1.93	+1.56	6.17	< .01-2T
TD	4.33	3.43	-.90	2.64	< .05-1T

Hypothesis 8

Under conditions of Low Self Credibility and Negative Feedback from a Low Credible Source, no cognitive imbalance will result, and; therefore, there will be no change in perceived Self Credibility, perceived Source

Credibility, or perceived Task Difficulty.

Table 21 contains a summary of the mean differences on each of the three dependent measures for subjects in the Low Self Credibility, Low Source Credibility, Negative Feedback condition. It can be seen that the data generally fail to support the hypothesis of no change. The change

Table 21. Pre Test Minus Post Test Mean Differences for Subjects in the Low Self Credibility, Low Source Credibility, and Negative Feedback Condition

	Pre- mean	Post- mean	D	<u>t</u>	<u>p</u>
SLF	4.14	4.59	-.45	1.44	N.S.
SOC	3.29	4.19	-.90	2.26	<.05-2T
TD	4.53	4.80	+.27	.80	N.S.

that did occur took the form of a reduction in perceived Source Credibility. As predicted there were no changes in perceived Self Credibility or Perceived Task Difficulty.

A grand summary of the differences between the pre test and post test means for each dependent variable in each treatment is contained in Table 22. It can be seen that the predictions based on the balance model were correct for twelve of the twenty-four hypotheses; i.e., predictions were correct 50 per cent of the time. Eleven of the twelve incorrect predictions involve significant changes in the dependent variables not implied by balance theories. Possible reason for this large number of unpredicted significant changes will be explored in Chapter IV.

Table 22. Grand Summary of Pre -- Post Mean Differences
for the Dependent Variables, Self Credibility,
Source Credibility, and Task Difficulty

Assigned Condition			Dependent measures	Pre Mean	Post Mean	D	<u>t</u>	<u>p</u>	Predicted
SLF	SOC	FB							
H	H	P	SLF	3.15	2.67	+.48	2.16	<.05-2T	NO
			SOC	3.05	1.75	+1.30	10.59	<.01-1T	NO
			TD	3.86	3.80	-.06*	.22	N.S.	YES
H	H	N	SLF	3.07	3.48	-.41	1.87	N.S.	YES
			SOC	3.01	3.30	-.29	1.28	N.S.	NO
			TD	3.76	4.50	+.74	4.12	<.01-1T	YES
H	L	P	SLF	3.50	2.37	+1.13	4.93	<.01-2T	NO
			SOC	3.68	1.78	+1.90	9.40	<.01-2T	NO
			TD	3.70	2.93	-.77	3.31	<.01-1T	NO
H	L	N	SLF	3.41	3.95	-.54	1.30	N.S.	YES
			SOC	3.34	4.08	-.74	5.15	<.01-1T	YES
			TD	4.00	4.86	+.86	2.49	<.05-1T	YES
L	H	P	SLF	4.05	3.38	+.67	3.69	<.01-1T	YES
			SOC	2.42	1.90	+.52	2.57	<.05-2T	NO
			TD	4.46	3.56	-.90	1.86	<.05-1T	YES
L	H	N	SLF	3.76	5.31	-1.55	3.80	<.01-2T	NO
			SOC	2.81	3.66	-.85	2.45	<.05-2T	NO
			TD	4.17	4.73	+.56	2.24	<.05-2T	NO
L	L	P	SLF	3.79	2.93	+.86	2.19	N.S.	YES
			SOC	3.49	1.93	+1.56	6.17	<.01-2T	NO
			TD	4.33	3.43	-.90	2.64	<.05-1T	YES
L	L	N	SLF	4.14	4.59	-.45	1.44	N.S.	YES
			SOC	3.29	4.19	-.90	2.26	<.05-2T	NO
			TD	4.53	4.80	+.27	.80	N.S.	YES

*all signs for task difficulty have been reflected. + = increase in TD
and - = decrease in TD

Additional Analysis

Additional analyses were performed on those measures which were kept by the experimenter during the interaction. These measures were obtained

to gain further useful information about potential ways in which the subjects' behavior might be affected by the experimental treatments.

Time taken to complete the description of the puzzle.

For each subject a measure was obtained of the amount of time in seconds taken to complete the puzzle. Table 23 contains a summary of the mean number of seconds for subjects in each of the eight treatments.

Table 23. Mean Number of Seconds Taken to Describe the Puzzle

	<u>HSLF- HSOC</u>	<u>HSLF- LSOC</u>	<u>LSLF- HSOC</u>	<u>LSLF- LSOC</u>
Positive Feedback	332	279	371	330
Negative Feedback	612	856	642	742

These data were analyzed by means of a three factor analysis of variance. Table 24 contains a summary of this analysis. The analysis yielded a significant F of 46.50 for the Feedback effect.

Table 25 contains a summary of the 28 possible comparisons of treatment means. It can be seen that all of the comparisons between Positive and Negative Feedback conditions result in significant differences. Subjects in the Negative Feedback conditions took longer to describe the puzzle than did subjects in the Positive Feedback conditions. In addition, one of the comparisons between Negative Feedback conditions resulted in a significant difference.

Table 24. Summary Table of the Three Factor Analysis of Variance of Time* Taken to Describe the Puzzle

<u>Source of variation</u>	<u>df.</u>	<u>MS</u>	<u>F</u>
Between			
Self credibility (A)	1	52	< 1.00
Source credibility (B)	1	77937	1.22
Feedback (C)	1	2966425	46.50**
A/B	1	21615	< 1.00
A/C	1	37454	< 1.00
B/C	1	238165	3.73
A/B/C	1	30225	< 1.00
Within error	72	63784	

* = Time in seconds

** = $p < .05$ two tailed

Table 25. Critical Difference Test for Treatment Means on Time Taken to Describe the Puzzle

<u>Treatment</u>											
<u>SLF</u>	<u>SOC</u>	<u>FB</u>	<u>Mean</u>	<u>H-H-P</u>	<u>H-L-P</u>	<u>L-H-P</u>	<u>L-L-P</u>	<u>H-H-N</u>	<u>H-L-N</u>	<u>L-H-N</u>	<u>L-L-N</u>
H	H	P	332	-----	-053	+039	+002	+280*	+524*	+310*	+410*
H	L	P	279		-----	+092	+051	+333*	+577*	+363*	+463*
L	H	P	371			-----	-041	+241*	+485*	+271*	+371*
L	L	P	330				-----	+282*	+526*	+312*	+412*
H	H	N	612					-----	+244*	+030	+130
H	L	N	856						-----	-214	-114
L	H	N	642							-----	+100
L	L	N	742								-----

* = $p < .05$ two tailed Critical Difference = 234

Choice of stopping time

After each subject had explained the puzzle once, she was given the opportunity to stop or to go over the puzzle again. Since the resultant data for each subject meet only the assumptions of nominal measurement, a χ^2 was computed for each of the independent variables. The results are found in Tables 26, 27, and 28.

Table 26. Choice of Stopping Time and Self Credibility

	<u>Stopped first time</u>	<u>Stopped second time</u>
High SLF	20	20
Low SLF	10	30
$\chi^2 = 5.33; (p = < .05)$		

Table 27. Choice of Stopping Time and Source Credibility

	<u>Stopped first time</u>	<u>Stopped second time</u>
High SOC	15	25
Low SOC	13	27
$\chi^2 = 1 \text{ N.S.}$		

Table 28. Choice of Stopping Time and Feedback

	<u>Stopped first time</u>	<u>Stopped second time</u>
Positive FB	25	15
Negative FB	5	35
$\chi^2 = 21.33; (p = < .01)$		

It is apparent that those subjects under Negative Feedback conditions stopped less often at the first opportunity than did those subjects under Positive Feedback conditions. In addition, Table 26 indicates that those subjects under Low Self Credibility treatments stopped less often at the first opportunity than did subjects under High Self Credibility treatments.

Number of information questions asked by the subject

For each subject, a measure was taken of the number of information questions asked of the confederate. Table 29 contains a summary of the mean number of information questions asked by subjects in each of the eight treatments.

Table 29. Mean Number of Information Questions Asked by
Subjects in the Eight Treatments

	<u>HSLF- HSOC</u>	<u>HSLF- LSOC</u>	<u>LSLF- HSOC</u>	<u>LSLF- LSOC</u>
Positive Feedback	1.20	.60	1.10	.80
Negative Feedback	3.50	5.60	5.00	7.60

These data were analyzed by means of a three factor analysis of variance. Table 30 contains a summary of the analysis. The Feedback effect yielded a significant F of 39.63. No other effects were significant.

Table 31 contains a summary of the 28 possible comparisons between treatment means. All of the 13 significant comparisons indicate that subjects in the Negative Feedback conditions asked a significantly greater number of questions than did subjects in the Positive Feedback conditions.

Table 30. Summary Table of the Three Factor Analysis of Variance
of Number of Information Questions Asked

<u>Source of variance</u>	<u>df.</u>	<u>MS</u>	<u>F</u>
Between			
Self credibility (A)	1	16.20	1.59
Source credibility (B)	1	18.05	1.77
Feedback (C)	1	405.00	39.63*
A/B	1	.80	< 1.00
A/C	1	14.45	1.41
B/C	1	39.20	3.83
A/B/C	1	.05	< 1.00
Within error	72	10.22	

* = $p < .05$ two tailed

Table 31. Critical Difference Test for Treatment Means
on Number of Information Questions Asked

<u>Treatment</u>				<u>H-H-P</u>	<u>H-L-P</u>	<u>L-H-P</u>	<u>L-L-P</u>	<u>H-H-N</u>	<u>H-L-N</u>	<u>L-H-N</u>	<u>L-L-N</u>
<u>SLF</u>	<u>SOC</u>	<u>FB</u>	<u>Mean</u>								
H	H	P	1.20	----	-.60	-.10	-.40	+2.30	+4.40*	+3.80*	+6.40
H	L	P	.60		----	+.50	+.20	+2.90*	+5.00*	+4.40*	+7.00*
L	H	P	1.10			----	-.20	+2.40	+4.50*	+3.90*	+6.50*
L	L	P	.80				----	+2.70	+4.90*	+4.20*	+6.80*
H	H	N	3.50					----	+2.10	+1.50	+2.10
H	L	N	5.60						----	-.60	+2.00
L	H	N	5.00							----	+2.60
L	L	N	7.60								----

* = $p < .05$ two tailed Critical Difference = 2.86

CHAPTER IV

CONCLUSIONS, DISCUSSION, AND IMPLICATIONS FOR FURTHER RESEARCH

All conclusions and generalizations made in this chapter are limited to those interaction situations which closely parallel the experimental subjects and conditions. As stated earlier, pretesting data indicated that different results might be expected under different sex combinations. The nature of the task, the control of visual feedback, and numerous other potentially relevant variables also place restrictions on the generalization of the findings.

Conclusions

Across all treatment conditions, it is clear that the feedback a subject receives from a source does affect her perception of Self Credibility, the credibility of the source of the feedback and her perception of the difficulty of the task.

Self Credibility appears to be the most stable of all of the variables; and, hence, least susceptible to change. Three of the four significant changes in Self Credibility occurred in Positive Feedback treatments. This suggests that the subjects in this experiment were more willing to increase their perceived Self Credibility than to decrease it.

Consistent across all treatment conditions, Source Credibility decreased under Negative Feedback and increased under Positive Feedback. The ambiguity of the situation and the fact that the subjects did not know the confederates seems to create a situation in which Source

Credibility is very susceptible to change.

Finally, the subjects' perceptions of the difficulty of the task change consistently with feedback conditions. Subjects who receive Negative Feedback perceive the task as being more difficult, while subjects who receive Positive Feedback perceive the task as being less difficult.

In this study, predictions were made concerning changes in the dependent variables as a result of combining various values of the independent variables. It is necessary, then, to establish some conclusions involving each of the eight treatment conditions.

(1) It was predicted that in the High Self Credibility, High Source Credibility, and Positive Feedback condition, no cognitive imbalance would result. One possible explanation of why changes did in fact occur when not predicted, is provided below in the discussion section. Subjects in this treatment increased significantly their ratings of their own Self Credibility and their ratings of the source providing the feedback. One might also expect a significant decrease in Task Difficulty; however, given the experimental conditions there is no reason for that variable to change. If an individual feels that both participants in the interaction function effectively at the task, and if she receives no information that throws doubt on this assumption, then the perceptions of the difficulty of the task should remain constant.

(2) It was correctly predicted that the High Self Credibility, High Source Credibility, Negative Feedback condition would produce cognitive imbalance. This imbalance is reduced by increasing the perception of the difficulty of the task. It was also predicted that imbalance would be

reduced by decreasing Source Credibility. It appears that the combination of High Self Credibility and High Source Credibility makes these two variables resistant to change. It seems reasonable to assume, that, if an individual perceives that both participants in an interaction function effectively, the easiest way to restore balance caused by the negative feedback is to perceive the task as being more difficult rather than decreasing the high credibility of the source.

(3) It was predicted that in the High Self Credibility, Low Source Credibility, and Positive Feedback condition no cognitive imbalance would result. One possible explanation of why changes did in fact occur when not predicted, is provided below in the discussion section. Subjects in this treatment increased significantly their ratings of their own Self Credibility and the credibility of the source providing the feedback. To balance these cognitive changes, subjects in this treatment decreased their perception of the difficulty of the task.

(4) It was predicted that in the High Self Credibility, Low Source Credibility, Negative Feedback condition, cognitive imbalance would result. The variables changed as predicted. When people receive what they perceive as Negative Feedback from a Low Credible Source, they would not be expected to reduce the resulting imbalance by decreasing their Self Credibility. Subjects in this condition reduced the imbalance by decreasing significantly the credibility of the source. To balance this change they increased their perception of the difficulty of the task.

(5) It was predicted that in the Low Self Credibility, High Source Credibility, Positive Feedback condition, cognitive imbalance would result.

After being told that the person was not very good at this task the resultant imbalance is most easily reduced by increasing significantly Self Credibility. One possible explanation of the reason for the concomitant significant **increase** in perceived Source Credibility which was not predicted, is in a later section of this chapter. To balance the change in perceived Self Credibility and perceived Source Credibility, there was a significant decrease in perceived Task Difficulty.

(6) It was predicted that in the Low Self Credibility, High Source Credibility, Negative Feedback condition, no cognitive imbalance would result. The prediction of no cognitive change was based on the assumption that, when an individual who does not perceive herself as being very good at a task, receives information that does not challenge this assumption then there is no reason to change her perceptions of herself or the source of the information. A discussion of why Self Credibility and Source Credibility did in fact significantly decrease is provided in the discussion section. To balance these changes, subjects in this treatment significantly increased their perceptions of the difficulty of the task.

(7) It was predicted that in the Low Self Credibility, Low Source Credibility, Positive Feedback condition, cognitive imbalance would result. As predicted, Self Credibility did not change significantly. Not predicted was a significant increase in Source Credibility. To balance the significant increase in Source Credibility, subjects in this treatment significantly decreased their perceptions of the difficulty of the task, as predicted.

(8) It was predicted that in the Low Self Credibility, Low Source

Credibility, Negative Feedback condition, no cognitive imbalance would result. Not predicted was a significant decrease in the ratings of the source of the feedback. One possible explanation of why this change occurred is provided below in the discussion section. With the significant decrease in perceived Source Credibility one might also expect a significant increase in the perception of the difficulty of the task. However, given the experimental conditions, there is no reason for that variable to change. If an individual feels that both participants in the interaction do not function very effectively at the task, and if she receives no information that throws doubt on this assumption, then perceptions of the difficulty of the task should remain constant.

In addition to the conclusions relating to the eight hypotheses of interest in the study, additional data were gathered by the experimenter during the observation of the interaction between the subject and the confederate. Following is a summary of the conclusions relevant to these observations.

(1) Subjects exposed to Negative Feedback generally took longer to describe the puzzle than did subjects exposed to Positive Feedback. Such instances of Negative Feedback served to indicate to the subject that her messages were ambiguous. As a result, subjects in the Negative Feedback conditions engaged in a greater number of communication attempts aimed at revising their instructions so that they would be clear to the confederate. It is these increased number of attempts at clarification that largely account for the observed time differences. This finding provides further support for the previously mentioned research (8)(14)(25)(26) concerning

the effects of negative feedback on observable encoding behavior. As Newcomb (17) suggests, changes caused by an imbalanced state can be either behavioral, cognitive, or both. The emphasis on cognitive change in this study made it necessary to control attempts by the subject to clarify the situation by having the confederate reply to interrogative questions with a noncommittal answer. In other words, the attempts of the subject to reduce the imbalance by increasing the volume of communication directed toward the confederate were rejected by the confederate.

(2) Subjects exposed to Negative Feedback asked a significantly greater number of questions of the confederate than did subjects exposed to Positive Feedback. One explanation for this finding is contained in the immediately preceding discussion of differences in time spent describing the puzzle. Most of the communication attempts to increase clarity were couched in the form of interrogative statements. This fact accounts for the significant differences observed between subjects in Positive and Negative Feedback conditions.

(3) Subjects exposed to Negative Feedback chose to describe the puzzle a second time significantly more frequently than did subjects exposed to Positive Feedback. This finding is somewhat more surprising than those summarized above. It might be expected that subjects receiving Negative Feedback would seize upon the first available opportunity to withdraw from a potentially threatening and anxiety-arousing situation, while those subjects receiving Positive Feedback would choose to maintain the existing pleasant state of psychological affairs for as long as possible. Such, however, was not the case. One possible explanation for

the willingness of subjects in the Negative Feedback condition to continue work on the puzzle may have been the student-instructor relationship existing between the experimenter and themselves. These subjects may have been driven by a desire to do as well as possible, in order to maintain positive relationships with the experimenter.

(4) Subjects assigned to conditions of Low Self Credibility chose to describe the puzzle a second time significantly more frequently than did subjects assigned to conditions of High Self Credibility. On the surface, this result may seem unexpected; however, it should be remembered that half of these subjects were in conditions in which they received Positive Feedback from the confederate. It may well be that a number of these subjects chose to continue because they desired additional reinforcing information to offset their original perceptions of Low Self Credibility.

Discussion

The rationale of this study developed the premise that in an interaction situation involving task accomplishment, an individual has a number of cognitive clusters which are relevant to the situation. These cognitive clusters were conceptually defined as: Self Credibility, or the perceptions a person has concerning his own ability to engage in the interaction; Source Credibility, or the perceptions a person has concerning the abilities of other participants to engage in the interaction; and, Task Difficulty, or the perceptions a person has concerning the complexity and difficulty of the task in which the person is engaged.

The rationale further stated that when an individual receives feedback which is not consistent with the cognitive elements he is placed in a state of cognitive imbalance. In order to restore cognitive balance it is necessary for the individual to make changes in the cognitive elements. A number of alternative ways to change the cognitive elements are available to the individual. The value of this research study has been to identify the specific changes occurring in these cognitive elements under varying combinations of Self Credibility, Source Credibility and Feedback.

It is clear from the results of this study that there are some limitations on the predictive ability of the balance model in this situation. Of the 24 predictions made in this study, 12 were correct. Of the 12 incorrect predictions, eleven involved significant changes when none had been predicted. An inspection of the data and the experimental procedures suggest some possible explanations for the failure to predict these changes.

First, comments made by the subjects after the experiment indicate that the situation was very ambiguous. Prior experience in a situation like this was, as far as could be determined, nonexistent. The only indication that the subjects had concerning their own and the confederates' competencies was provided by the experimenter. The perceptions of Self Credibility and Source Credibility, then, were based on a single learning trial. It appears that this single learning trial was not sufficient to provide for the unequivocal manipulation of the independent variables. The data in Table 22 indicate that while the experimental manipulations

were sufficient to produce significant differences between high and low conditions, all of these differences lie on the positive side of the seven point scale used to measure the variables. The range of pre test means for Self Credibility and Source Credibility suggest that the experimental differences were created, not between high and low, but between neutral and high. In particular, the experimental manipulation of Self Credibility was not as successful as would be ideally desired. Although the means for High Self Credibility conditions are consistently larger, only three of the sixteen comparisons between High and Low Self Credibility conditions are statistically significant.

It is suggested, then, that the experimental conditions served as additional positive or negative reinforcers to the single learning trial provided by the experimenter. For example, subjects assigned to High Self Credibility, High Source Credibility, and Positive Feedback, had pre test Self Credibility and Source Credibility means of 3.15 and 3.07 respectively. The resultant Positive Feedback produced post test means of 2.67 and 1.75 respectively. The differences in pre test and post means are significant. However, had the experimental procedures produced pre test means further from the midpoint of the scale the post test means may not have been significant. This at least suggests that the elements of a situation can be described as "balanced" only after the values of these elements have been firmly established through a large number of experiences of learning trials. Thus, one potential limitation of balance models may be that they are powerful predictors only in situations which have had a long period of time to stabilize.

It appears, then, that the changes in the cognitive elements within each individual treatment condition can be explained in part within a balance theory framework. There is a further implication that the impetus to produce the imbalanced condition, which in turn creates the need for cognitive readjustment, rests in part on principles of learning theory. The significant changes, particularly in those conditions in which no cognitive change was predicted, resulted from the reinforcing or non-reinforcing nature of the feedback in relation to the prior perceptions the subjects had developed from the information given them by the experimenter. The predictions the experimenter made concerning cognitive change were based on the assumption of rigorous experimental procedures to produce appropriate experimental conditions. The apparent limitations of the experimental procedures provide some suggestions for further research, discussed in a later section of this chapter.

The predictions proposed in the rationale of this study were tentative, since the theoretic model used to generate the predictions did not incorporate a concept which could be equated with the variable Self Credibility, and since the model provides no means for predicting specific changes that will occur on each of the variables. A value of this study has been to provide information on various specific cognitive changes resulting from particular kinds of interaction situations. This study further demonstrates the inherent complexity of even the most simple appearing interaction situations, and fits well with a process philosophy view of communication. Verbal interaction produces complex and varied cognitive changes in relevant Self, Source, and Task variables.

Undoubtly, other variables also affect and are affected by the interaction. For example, this study attempted to provide some low level generalizations concerning the effect of a completely positive or negative feedback condition. The experimenter recognizes that is is highly unlikely that any interaction situation will contain information that is perceived as completely positive or completely negative. It was assumed that if differences were not significant when dealing with the ends of a hypothetical, postive---negative, continuum, it would be unlikely that differences would exist under combinations of positive or negative statements.

The concern for the further analysis of the variables in this study and other variables not used in this study, suggests some directions for continued research effort, specifically:

1. A study designed to allow the subject to gain more experience in the task. Additional experience before undergoing the experimental treatment may establish more stable conditions of Self Credibility.
2. A study in which the subject is allowed to establish her own level of Self Credibility. Methodologically, this could be accomplished by asking the subject, after a training period, how good she thinks whe will be at this task. Her remarks would then be used to place her in a particular experimental condition. This would control to some degree the problem of the experimenter randomly assigning subjects to experimental treatments which were

not commensurate with their own perceptions of their ability.

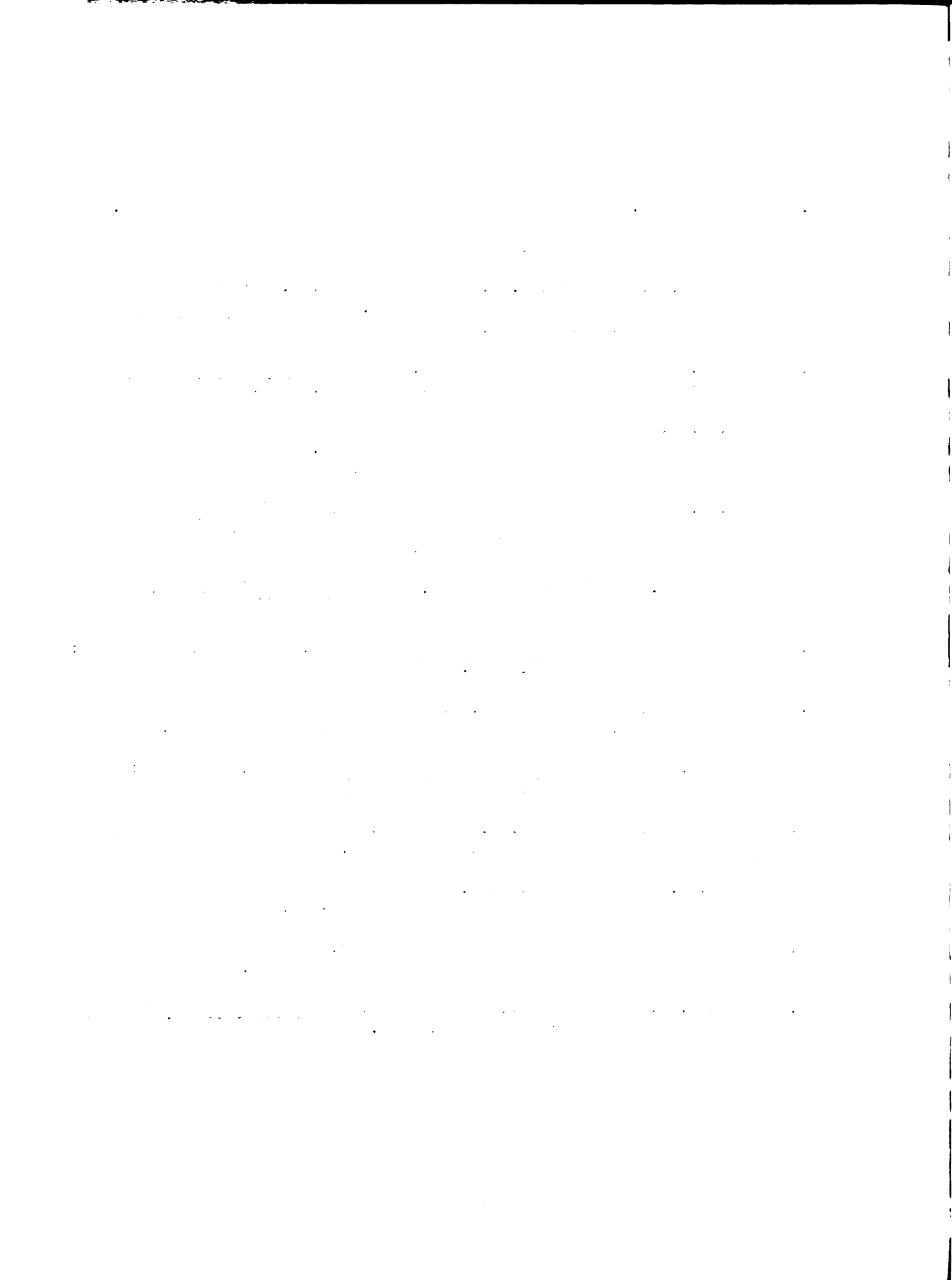
3. A series of studies in which the major independent variable would consist of manipulations within the feedback schedule. This series of studies would attempt to provide generalizations in regard to the relative weights of combinations of positive and negative statements.
4. Studies dealing with the ways in which grades and grading procedures function as feedback mechanisms for the receiver of the grades may provide further knowledge of the communication processes involved in the student-teacher interaction. A recent review (24) suggests that this problem area has not been extensively researched. One study (2) has established a relationship between the grade received on an essay and attitude change concerning the topic the essay was written about. Another recent study (22) has classified various forms of social power used by teachers to influence students. These forms of social power were compared with the students' grade aspirations and the students' perceived level of capacity. The study suggests that the conceptualization of feedback utilized in this study is rather broad and that feedback may take on more values than positive or negative, depending on the level of analysis.
5. This study established that the qualification factor of the previously mentioned factor analytic study (12), is useful as a measuring instrument to measure the concept Self

Credibility, at least within the content of an interaction situation involving a task. An investigation of the effect of feedback using the other two factors, safety and dynamism, along with the qualification factor as measuring instruments may produce significant differences in the measurement potential of each factor in this task situation.

6. This study involved only two individuals and a simple task. A series of studies involving more than two people and different task situations will serve to further clarify the effect of feedback in interaction situations.

REFERENCES

1. Bettinghaus, E. Communication theory and the use of the new media. Paper presented at the Conference on Theory for the New Media, Michigan State University, 1962.
2. Bostrom, R. N., Vlandis, J. W., & Rosenbaum, M. E. Grades as reinforcing contingencies and attitude change. Journal of Educational Psychology, 1961, 52, 112-115.
3. Brown, R. Models of attitude change. In New directions in psychology. New York: Holt Rinehart and Winston, 1962. pp. 3-85.
4. Cohen, A. R. The effects of individual self esteem and situational structure on threat ordered reactions to power. Unpublished doctoral dissertation, University of Michigan, 1953.
5. Combs, A. W. (Chairman) Perceiving, behaving, becoming. Yearbook Association for Supervision and Curriculum Development, 1962, National Education Association, Washington, D.C.
6. Festinger, L. Cognitive dissonance. Scientific American, 207, 93-100.
7. Festinger, L. A theory of cognitive dissonance. Stanford, California: Stanford University Press, 1957.
8. Greenberg, B., & Tannenbaum, P. H. Communicator performance under cognitive stress. Journalism Quarterly, 1962, 39(2), 168-178.
9. Heider, F. The psychology of interpersonal relations. New York: John Wiley and Sons, 1958.
10. Johnson, F. G., & Klare, G. R. Feedback: principles and analogies. Journal of Communication, 1962, 12, 150-159.
11. Leavitt, H. J., & Mueller, R. A. Some effects of feedback on communication. Human Relations, 1951, 4, 401-410.
12. Lemert, J. Dimensions of source credibility. Paper read at Association for Education in Journalism, August, 1963.
13. Miller, G. A., Galanter, E., & Pribram, K. H. Plans and the structure of behavior. New York: Henry Holt, 1960.



14. Miller, G. R. Variations in the verbal behavior of a second speaker as a function of varying audience response. Speech Monographs, 1964, 31, 109-116.
15. Mischel, W. The effect of the commitment situation on the generalization of expectancies. Journal of Personality, 1958, 26, 508-516.
16. Murphy, G. Toward a field theory of communications. Journal of Communication, 1961, 11, 196-201.
17. Newcomb, T. An approach to the study of communication acts. Psychological Review, 1953, 60, 393-404.
18. Osgood, C. E. Cognitive dynamics in human affairs. Public Opinion Quarterly, 1960, 24, 341-365.
19. Osgood, C. E. & Tannenbaum, P. H. The principle of congruity in the prediction of attitude change. Psychological Review, 1955, 62, 42-55.
20. Powers, W. T., Clark, R. K., & McFarland, R. L. A general feedback theory of human behavior: part II. Perceptual and Motor Skills, 1960, 11, 309-323.
21. Rosenbaum, M. E., & deCharms, R. Direct and vicarious reduction of hostility. Journal of Abnormal and Social Psychology, 1960, 11, 309-323.
22. Rosenfeld, H., & Zander, A. The influence of teachers on aspirations of students. Journal of Educational Psychology, 1961, 52, 1-11.
23. Salzinger, K. Experimental manipulation of verbal behavior; a review. Journal of General Psychology, 1959, 61, 65-94.
24. Smith, Ann Z., & Dobbin, J. E., Marks and marking systems. In C. W. Harris (Ed.), Encyclopedia of educational research. New York: Macmillan, 1960. pp. 783-789.
25. Stassi, E. J. Disfluency of normal speakers and reinforcement. Journal of Speech and Hearing Research, 1961, 4, 358-361.
26. Stolz, W. Some effects of cognitive feedback on encoding behavior. Unpublished masters thesis, University of Wisconsin, 1962.
27. Stotland, E., & Cottrell, N. B. Self esteem, group interaction, and group influence on performance. Journal of Personality, 29, 273-284.

28. Wiener, N. Cybernetics. New York: John Wiley, 1948.
29. Wiener, N. The human use of human beings. New York: Doubleday, 1956.
30. Wylie, Ruth. The self concept. Lincoln: University of Nebraska Press, 1961.

APPENDIX A

Information Flow Study
Department of Communication
Michigan State University

This research study is one of a series concerned with the flow of information in communication situations.

All instructions on how to proceed will be given to you either in this booklet or by the researcher. Please do not turn ahead to any part of the booklet, unless you are told to do so either in the booklet or by the researcher. Also, once you have completed any part of the booklet please do not turn back.

You will be called by the letter which is visible to you at eye level on the partition.

At times you will be asked to pass information through to the researcher. Please wait until this information is requested before passing it.

Do not be concerned with the numbers on the right side of some of the pages. These numbers are there for the purpose of coding the information to IBM cards.

Do you have any questions at this point? If you do, please ask them now. If you have no questions, please say NO QUESTIONS

DO NOT TURN THIS PAGE UNTIL TOLD TO DO SO

I Would you please complete the following information:

1. Class designation: (Check one)

Freshman ____ Sophomore ____ Junior ____ Senior ____ Grad. ____ (14) ____

2. Sex: Male ____ Female ____ (15) ____

3. College enrolled in: (Check one)

Agriculture _____ Engineering _____

Arts & Letters _____ Home Economics _____

Business _____ Natural Science _____

Communication Arts _____ Social Science _____

Education _____ University _____

Other (Specify) _____ (16-17) ____

When you are ready to begin say READY

DO NOT TURN THIS PAGE UNTIL TOLD TO DO SO

This part of the study will involve the completion of a task similar to the one you have been practicing on. For this particular part:

Subject A will--

1. receive a card with the position of the seven figures on it
2. have the task of describing the figure so that Subject B can reproduce it

Subject B will--

1. have the task of actually putting together the figure
2. provide the information to subject A by responding verbally

You will have as much time to work at this task as you wish. The task will not be stopped until either Subjects A or B wish to stop working. Before proceeding with the task we would like some further information from you. At the top of each of the following three pages you will find a statement listed above a set of seven-point scales. Please indicate your reaction to the statement by placing a check mark on each scale. For example, here is a statement and a single scale:

Classes at M.S.U.

Good ____:____:____:____:____:____:____ Bad

If you feel that classes at M.S.U. are in general extremely good, you would place a check mark in the space closest to the word good.

TURN THE PAGE

In general, consider the positions on the scale to represent the following judgments:

Good:

extremely good

quite good

slightly good

neither good or bad,

"I don't know"

"This scale doesn't apply to the question"

slightly bad

quite bad

extremely bad

Bad:

Be sure to put one check mark, and only one, along each scale.

Do not omit any scales.

Go ahead and complete the next three pages. When you are finished with the three pages, say READY

TURN THE PAGE AND COMPLETE THE NEXT THREE PAGES

Statement:

Subject B, the person cooperating with you, in relation to the
task about to be performed

Reasonable	__ : __ : __ : __ : __ : __ : __	Unreasonable	(32) __
Unsuccessful	__ : __ : __ : __ : __ : __ : __	Successful	(33) __
Expert	__ : __ : __ : __ : __ : __ : __	Ignorant	(34) __
Crude	__ : __ : __ : __ : __ : __ : __	Gracious	(35) __
Unfriendly	__ : __ : __ : __ : __ : __ : __	Friendly	(36) __
Inefficient	__ : __ : __ : __ : __ : __ : __	Efficient	(37) __
Admirable	__ : __ : __ : __ : __ : __ : __	Contemptable	(38) __
Patient	__ : __ : __ : __ : __ : __ : __	Impatient	(39) __
Incompetent	__ : __ : __ : __ : __ : __ : __	Competent	(40) __
Knowledgeable	__ : __ : __ : __ : __ : __ : __	Unknowledgeable	(41) __
Closedminded	__ : __ : __ : __ : __ : __ : __	Openminded	(42) __
Capable	__ : __ : __ : __ : __ : __ : __	Incapable	(43) __
Just	__ : __ : __ : __ : __ : __ : __	Unjust	(44) __
Confident	__ : __ : __ : __ : __ : __ : __	Unsure	(45) __

TURN THE PAGE

Statement:

Myself, in relation to the task about to be performed

- Just ___:___:___:___:___:___:___ Unjust (18)___
- Incapable ___:___:___:___:___:___:___ Capable (19)___
- Competent ___:___:___:___:___:___:___ Incompetent (20)___
- Admirable ___:___:___:___:___:___:___ Contemptable (21)___
- Crude ___:___:___:___:___:___:___ Gracious (22)___
- Successful ___:___:___:___:___:___:___ Unsuccessful (23)___
- Reasonable ___:___:___:___:___:___:___ Unreasonable (24)___
- Ignorant ___:___:___:___:___:___:___ Expert (25)___
- Unfriendly ___:___:___:___:___:___:___ Friendly (26)___
- Efficient ___:___:___:___:___:___:___ Inefficient (27)___
- Patient ___:___:___:___:___:___:___ Impatient (28)___
- Unknowledgeable ___:___:___:___:___:___:___ Knowledgeable (29)___
- Closedminded ___:___:___:___:___:___:___ Openminded (30)___
- Confident ___:___:___:___:___:___:___ Unsure (31)___

TURN THE PAGE

Respond to the following scales in relation to how you perceive the cooperative task you are about to engage in:

- meaningful ___:___:___:___:___:___:___ not meaningful (46)___
- easy ___:___:___:___:___:___:___ difficult (47)___
- fast ___:___:___:___:___:___:___ slow (48)___
- colorful ___:___:___:___:___:___:___ dull (49)___
- complex ___:___:___:___:___:___:___ simple (50)___
- clear ___:___:___:___:___:___:___ unclear (51)___

Respond to the following scales in relation to the information you expect to receive from your partner

- helpful ___:___:___:___:___:___:___ harmful (52)___
- unclear ___:___:___:___:___:___:___ clear (53)___
- sensible ___:___:___:___:___:___:___ not sensible (54)___
- negative ___:___:___:___:___:___:___ positive (55)___
- good ___:___:___:___:___:___:___ bad (56)___
- remote ___:___:___:___:___:___:___ intimate (57)___

DO NOT TURN THE PAGE

WHEN YOU FINISH THIS PAGE, SAY READY

Statement:

Myself, in relation to the task just completed

Unsure	__:	__:	__:	__:	__:	__:	Confident	(18)	__
Openminded	__:	__:	__:	__:	__:	__:	Closedminded	(19)	__
Knowledgeable	__:	__:	__:	__:	__:	__:	Unknowledgeable	(20)	__
Impatient	__:	__:	__:	__:	__:	__:	Patient	(21)	__
Inefficient	__:	__:	__:	__:	__:	__:	Efficient	(22)	__
Friendly	__:	__:	__:	__:	__:	__:	Unfriendly	(23)	__
Expert	__:	__:	__:	__:	__:	__:	Ignorant	(24)	__
Unreasonable	__:	__:	__:	__:	__:	__:	Reasonable	(25)	__
Unsuccessful	__:	__:	__:	__:	__:	__:	Successful	(26)	__
Gracious	__:	__:	__:	__:	__:	__:	Crude	(27)	__
Contemptable	__:	__:	__:	__:	__:	__:	Admirable	(28)	__
Incompetent	__:	__:	__:	__:	__:	__:	Competent	(29)	__
Capable	__:	__:	__:	__:	__:	__:	Incapable	(30)	__
Unjust	__:	__:	__:	__:	__:	__:	Just	(31)	__

TURN THE PAGE

Statement:

Subject B, the person cooperating with you, in relation to
the task just completed

Unsure	___:___:___:___:___:___:___	Confident	(32) ___
Unjust	___:___:___:___:___:___:___	Just	(33) ___
Incapable	___:___:___:___:___:___:___	Capable	(34) ___
Openminded	___:___:___:___:___:___:___	Closedminded	(35) ___
Unknowledgeable	___:___:___:___:___:___:___	Knowledgeable	(36) ___
Competent	___:___:___:___:___:___:___	Incompetent	(37) ___
Impatient	___:___:___:___:___:___:___	Patient	(38) ___
Contemptable	___:___:___:___:___:___:___	Admirable	(39) ___
Efficient	___:___:___:___:___:___:___	Inefficient	(40) ___
Friendly	___:___:___:___:___:___:___	Unfriendly	(41) ___
Gracious	___:___:___:___:___:___:___	Crude	(42) ___
Ignorant	___:___:___:___:___:___:___	Expert	(43) ___
Successful	___:___:___:___:___:___:___	Unsuccessful	(44) ___
Unreasonable	___:___:___:___:___:___:___	Reasonable	(45) ___

TURN THE PAGE

Respond to the following scales in relation to the information you received from your partner

Intimate ___:___:___:___:___:___:___ Remote (52) ___
 Bad ___:___:___:___:___:___:___ Good (53) ___
 Positive ___:___:___:___:___:___:___ Negative (54) ___
 Not Sensible ___:___:___:___:___:___:___ Sensible (55) ___
 Clear ___:___:___:___:___:___:___ Unclear (56) ___
 Harmful ___:___:___:___:___:___:___ Helpful (57) ___

Respond to the following scales in relation to how you perceive the cooperative task you have just engaged in

Unclear ___:___:___:___:___:___:___ Clear (46) ___
 Simple ___:___:___:___:___:___:___ Complex (47) ___
 Dull ___:___:___:___:___:___:___ Colorful (48) ___
 Slow ___:___:___:___:___:___:___ Fast (49) ___
 Difficult ___:___:___:___:___:___:___ Easy (50) ___
 Not Meaningful ___:___:___:___:___:___:___ Meaningful (51) ___

TURN THE PAGE

WHEN YOU ARE FINISHED WITH THIS PAGE, SAY FINISHED

Reinforcement schedule--POSITIVE

Respond to all questions with a positive answer--O.K.,

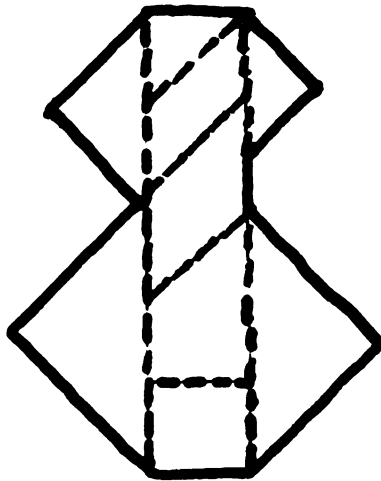
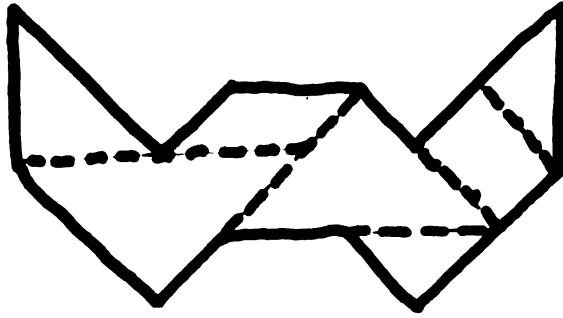
Right, I got it, etc.

To any opening statement	Fine, Let's go on
After the 1st piece	Good, Let's go on
After 2nd piece	It was a good idea to start with the ____ pieces
After the 3rd piece	I'm sure you have explained these correctly, but could we go over the first three briefly so we can check
After reviewing the 3 pieces	O.K., Let's go on
After the 4th piece	Good
After the 5th piece	I've got it. I think I see where the last two pieces fit
After the 6th piece	You're doing fine, I think we're going to have this right
After the 7th piece	I would have gone about this the same way you did, anyhow you can go over it again briefly or we can stop, you decide
After the ending statement	Fine - I think we did all right

Reinforcement schedule--Negative

1. Try to avoid direct answers except when necessary
2. Try to keep on schedule
3. Use a tone of voice which is firm and strong
4. Try to make the statements sound natural
5. Move a piece or two together once in awhile

To any opening statement	That's not clear. Will you go over it again
After 1st piece	I'm not sure this is right, but let's go on
After 2nd piece	It seems to me that it would have been better to start with the ____ pieces (choose pieces other than those the subject started with)
After 3rd piece	I'm not sure this is clear, go back over the first 3 so I can check
After reviewing the first 3	I'm not sure, but let's go ahead
After the 4th piece	Uh-huh
After 5th piece	It doesn't look to me like the last two pieces left will fit
After the 6th piece	Boy, if we get this right it'll be a miracle
After the 7th piece	I would have done this a different way anyhow, you can go over it again briefly or we can stop now, you decide
After the last statement	I don't think we did very well

Practice Puzzles

MICHIGAN STATE UNIV. LIBRARIES



31293104564996