

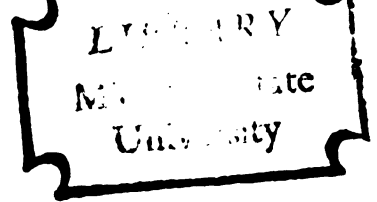
EDUCATIONAL EFFECTS OF INSTRUCTIONAL PROCEDURES
DIFFERENTIATED IN TERMS OF SELECTED PSYCHOLOGICAL
CHARACTERISTICS OF STUDENTS

Thesis for the Degree of Ed. D.

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This is to certify that the
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Educational Effects of Instructional
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ABSTRACT

EDUCATIONAL EFFECTS OF INSTRUCTIONAL PROCEDURES DIFFERENTIATED IN TERMS OF SELECTED PSYCHOLOGICAL CHARACTERISTICS OF STUDENTS

by Lyman Van Winkle, Jr.

This descriptive study was designed to investigate the effects of two different instructional procedures upon four groups of students. Particular attention was given to certain psychological characteristics of the students in terms of differential impacts of the instructional procedures. The students were enrolled in a pre-student-teaching educational psychology course, Individual and the School, at Michigan State University, during the Spring Quarter, 1967.

The treatment consisted of two different methods of instructional use of forty Focused Observations selected from the 241 available in the Learning Systems Institute's descriptive study of elementary teaching in the inner city. The Focused Observation is a one-page description of a moment of teacher decision-making behavior. Each description contains five verbal segments: (1) SITUATION, (2) ACTION, (3) CONSEQUENCES, (4) RATIONALE, and (5) GENERALIZATION.

Two Focused Observations were selected as being the most appropriate for use as the content problems for the criterion instruments used in the study. Two criterion instruments, presenting only the problem-solving situations, were used as part of the pretest and post-test. Two other criterion instruments, presenting twelve alternative actions to the same problem-solving situations, were used as part of the post-test.

The effects of the instructional procedures on the students' capacities to solve instructional problems, as represented by their divergent thinking with respect to the production of alternative actions, their decision-making with respect to flexible endorsement of alternative actions, and their self-reported ease/difficulty of producing and endorsing alternatives, were measured by the use of the four criterion instruments.

Several scales were used to measure certain psychological characteristics of students, in order to ascertain the correlation between students' responses on these scales and the criterion instruments. The characteristics tapped were representative of the four response systems available to each student: (1) a motivational system; (2) a cognitive system; (3) an attitudinal system; and (4) a self system.

The sample consisted of 135 students assigned to five teaching sections. Demographic data on nine factors

were generated via a Personal Data Sheet. Official records were consulted for College Qualification Tests scores and Grade-Point Averages. Statistical tests indicated lack of bias on these factors, scores, and averages, among the five groups.

The grouping procedures were designed to provide an immediate replication of each instructional treatment: Groups A (A1 and replication A2) under instructor A, received instructional treatment A; Groups B (B1 and replication B2) under instructor B, received instructional treatment B; Group C under instructor C, received no experience with instructional treatments A or B.

Instructional treatment A consisted of small-group interaction in five six-member small-groups. Instructor A assumed a non-directive role, used student-led discussions, and emphasized managerial and academic alternative actions with respect to the content problems presented in the forty Focused Observations.

Instructional treatment B consisted of a variety of small- and large-groups ranging from fourteen two-person groups to two fifteen-person groups. Instructor B gave short lectures, used instructor-led discussions, and emphasized psychological and social alternative actions with respect to the problem-solving situations presented in the forty Focused Observations.

Daily diaries recorded by instructor A and B provide a description of their uses of the Focused Observations, their daily activities, and the grouping and data collection procedures used in their groups during the thirteen treatment sessions.

Groups A, B, and C, were given (post-test) the four criterion instruments. A comparison of their responses was made to determine the effects of the instructional treatments.

Analyses of variance of the post-test difference among means of the five groups: (1) were significant ($p < .05$) with respect to the number of alternatives generated (divergent thinking), and also, to both flexible and non-flexible endorsement of alternatives suggested by the students; and (2) were not significant ($p < .05$) with respect to either flexible endorsement of twelve alternatives given by the researcher or ease/difficulty of producing and endorsing alternatives given either by the students or by the researcher. Group C did significantly better ($p < .05$) than the instructional treatment groups on the common midterm and final examinations.

The treatment groups were given (pretest/post-test) the several scales used to measure certain psychological characteristics of students. The change in responses of the groups (Groups A and Groups B were treated separately)

on eight criterion variables were correlated (RHO) with their pretest responses on the several scales.

Useful results were as follows: (1) divergent thinking tends to be associated with well informed, task-oriented persons who are inclined to experiment with problem-solving situations; (2) flexible endorsement tends to be associated with one's concept of oneself as a future classroom teacher and, in part, with students who are not "warm, sociable" and who are not predicted to enter teaching; and (3) ease/difficulty tends to be associated with task-oriented students who also are concerned with maintaining harmonious relationships in group activities.

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CHAPTER I

THE PROBLEM

Rationale for the Instructional Procedures Used in the Study

This descriptive study is designed to investigate the effects of two different instructional procedures upon four groups of prospective elementary teachers. Particular attention is given to differential impacts of the instructional procedures upon selected psychological characteristics of the students. The students enrolled in a pre-student-teaching Educational Psychology course, Individual and the School, at Michigan State University, during the Spring Quarter, 1967.

The instructional procedures consist of two methods of instructional use of descriptive materials selected from a behavioral model of the elementary school teacher. The behavioral model consists of 241 verbal descriptions available in the Learning Systems Institute's descriptive study of elementary teaching in the inner city.

Each verbal description, or Focused Observation is a one-page problem-solving, and/or decision-making situation, and is classified with respect to one of ten broad categories of model teacher behavior. Each

Focused Observation consists of five verbal segments as follows: (1) a problem-solving, and/or decision-making situation; (2) the action taken by the model teacher; (3) the actual consequences resulting from the action taken; (4) the rationale of the teacher for the action taken; and (5) a generalization based upon known principles drawn from the essential content of educational psychology (see Appendix A).

The 241 Focused Observations are also classified according to four types of teacher functions: Academic, Psychological, Managerial, and Social. This set of descriptive materials provides sound instructional data about model elementary teaching in inner-city school environments. In this study, these descriptive materials are referred to as the Mott Study: "Teaching in the Inner City," and each of the forty-five descriptions selected for instructional use is referred to as a Focused Observation.¹

Theory

In his three dimensional model, the "Structure-of-Intellect," J. P. Guilford uses three main ways of classifying mental abilities: (1) Input, the content or material the learner is given, and which is to be

¹Ted W. Ward and Judith E. Henderson, Teaching in the Inner City (East Lansing: Michigan State University, The Learning Systems Institute, 1966).

thought about; (2) the kind of Operation or process the thinker goes through; and (3) Output, the kind of answer the learner, thinker, or subject is asked to produce.^{2,3} The current study makes use of a three dimensional cell drawn from Guilford's model, and labeled behavioral input, divergent thinking operations, and implications product or output.

In this study, behavioral input consists of the content problem or situation drawn from forty-five Focused Observations selected from the Mott Study: "Teaching in the Inner City"; divergent thinking consists of the generation of a variety of alternative actions from the information given in each of the selected content problems; and implications as output consist of thinking through the probable consequences of following each alternative to its logical conclusion with respect to principles drawn from the lectures, text, and book of readings provided in the Individual and the School course.

R. M. Gagne, an educational researcher, differentiated between eight varieties of learning, each of which (1) builds sequentially upon all preceding varieties of

²J. P. Guilford, Personality (New York: McGraw-Hill, 1959a).

³J. P. Guilford, "Three Faces of Intellect," The American Psychologist, XIV (1959b), pp. 469-479.

learning, and (2) results in a different capability for performance by the learner.⁴ The current study deals with the most complex type of learning, which Gagne called "problem solving." Problem solving is defined as the kind of learning that requires thinking in which two or more principles previously acquired (via lectures and reading), are combined in some way to produce a new capability in the learning organism.

In general, learning is planned for and controlled by teaching strategies initiated by the teacher.⁵ Strategies are plans for learning, which ultimately result in bringing about new or modified ways of behaving. Plans are structures of decisions. Learning is any relatively permanent change in behavior resulting from one's experience.

A symbolic model of the learning organism assumes that: (1) the learner is a complex information-processing system;⁶ (2) the learner is goal-directed in his

⁴R. M. Gagne, The Conditions of Learning (New York: Holt, Rinehart, and Winston, Inc., 1965), pp. 31-171.

⁵J. F. McDonald, Educational Psychology (Belmont, California: Wadsworth, 1965), pp. 43-48.

⁶J. P. Guilford and P. R. Merrifield, "The Structure-of-Intellect Model: Its Uses and Implications," Reports from the Psychological Laboratory, No. 24 (Los Angeles: University of Southern California, 1960).

activities;⁷ and (3) the learner uses information from his external and internal environments to achieve his goals.^{8,9}

This symbolic model is built upon a general psychological theory of the motivational cycle in the human organism, and this involves three factors or steps: (1) the organism experiences some tension, drive, need, motive; (2) the organism emits behavior which at first is random, and with experience, becomes goal directed; and (3) the organism's behavior in operating on its environment is instrumental in reducing the drive or tension, or in fulfilling the need or motive, or in achieving the goal.¹⁰

McDonald has suggested a cybernetic decision-making model of the complex human organism which consists of three units: (1) Inputs, defined as cognitive content; (2) Transformations, defined as the interaction of personality characteristics and cognitive content; and (3) Outputs, defined as products of this interaction.¹¹

⁷Clifford T. Morgan and Richard A. King, Introduction to Psychology (New York: McGraw-Hill, 1966), pp. 203-205.

⁸Anne Anastasi, Fields of Applied Psychology (New York: McGraw-Hill, 1964), pp. 193-217.

⁹McDonald, op. cit., p. 78.

¹⁰Morgan, loc. cit.

¹¹McDonald, op. cit., pp. 60-61.

The decision-making process consists then of three sequences: (1) an Input Sequence in which information is assimilated and formulated; (2) an Operation Sequence in which plans are carried into action, figuratively or behaviorally; and (3) a Test Sequence in which feedback is received, evaluated, and used as new input within this closed-loop system.¹²

In applying the Decision-Making Model to prospective elementary teachers, it seems likely that the student could not only generate and/or propose alternative actions to problem-solving situations, but could also (1) select among the proposed alternative actions in terms of his values, orientations, and other personality factors; (2) consider the consequences or probable outcomes of choosing a particular course of action; and (3) estimate the risks or probabilities of various consequences occurring.¹³

McDonald also noted that there are four response systems available to the learner as follows: (1) a motivational system; (2) a cognitive system; (3) an attitudinal system; and (4) a self system.¹⁴ The

¹²Anastasi, op. cit., p. 239.

¹³James C. Coleman, Personality Dynamics and Effective Behavior (Fairlawn, New Jersey: Scott, Foresman and Co., 1960), pp. 191-192.

¹⁴McDonald, op. cit., pp. 76-78.

instruments selected to measure personality characteristics in this study are chosen so as to reflect one or more relevant aspects of each of these individual psychological response systems.

Questions

Several questions now suggest themselves with respect to the instructional procedures used in the study: first, what are the effects of the instructional procedures on divergent thinking? Divergent thinking is defined as the students' generation of a variety of possible alternative actions that an elementary teacher could take with respect to a problem-solving situation. In this study, the generation of alternative actions has to do with forty-five selected Focused Observation worksheets in which only the "situation" information is presented (see Appendix B).

Second, what are the effects of the instructional procedures on flexible endorsement? Flexible endorsement is defined as the student's decision to award either a B or C letter rating to the alternative actions given either by the student himself or by the researcher on the basis of previous research. The student makes this decision by using a four-part scale of endorsement as follows: (1) A Strongly Agree--Always Use; (2) B Agree--More Often Than Not Use--Use Most of the Time; (3) C Disagree--

Occasionally Use--Use Some of the Time; and (4) D Strongly Disagree--Never Use (see Appendix C).

Third, what are the effects of the instructional procedures on ease/difficulty of both producing and endorsing alternative actions? Ease/difficulty is defined as the relative ease or difficulty (self-reported by the student), in rating the given alternative actions in terms of the scale above. The student makes this response by using a six equal-part "EASY" to "DIFFICULT" scale as follows: (1) Very Easy; (2) Rather Easy; (3) Easy; (4) Difficult; (5) Rather Difficult; and (6) Very Difficult (see Appendix D).

Fourth, what effects can be found to be associated with differences among the individuals' psychological systems? The individual psychological system is defined in terms of four response systems available to the learner (or to the prospective elementary teacher in this study), as follows: (1) a motivational system; (2) a cognitive system; (3) an attitudinal system; and (4) a self system. The instruments selected to tap each of these response systems will be discussed in greater detail later in this chapter (see Appendix D).

Purpose and Importance of the Study

Current behavioral research can aid in bridging the apparent gap, between what we say or teach in theory and what we actually do in practice, because it

acknowledges the proposition that what experience has taught teachers is worth knowing. Instructional behaviors can be traced to their roots in the teacher's thinking in order to determine what hypotheses the teacher is operating from in his classroom. The Learning Systems Institute at Michigan State University conceptualizes instructional decision-making as the simplest element of teacher behavior. Examples of this element are represented in the 241 Focused Observations which comprise the Mott Study.

In the current study, the prospective elementary teacher is defined as a hypothesis generator and tester, using a decision-making model. This decision-making process consists of three behavior components: (a) an input sequence, in which information is assimilated, interpreted, and organized into a program for action; (b) an operation sequence, that is directly observable in behavior, and in which the plan is activated; (c) a test sequence, in which feedback is received, evaluated, and used as new input to revise plans where necessary. This cybernetic model of teacher behavior is the core formulation in the lectures, the book of readings and the text provided, in the Individual and the School course.

Decision-making in the live classroom may be described as a process in which the prospective elementary teacher seeks cues from the dynamics of an actual classroom

situation (described in each Focused Observation), combines these cues with the objectives he has for the learners (using his own hypotheses regarding learning), states an action he could take, evaluates the probable consequences of his action and the hypothesis on which he acted, in order to make a better prediction or to take a more flexible alternative action when he faces an analogous situation at a later time.

The descriptive study of teacher preparation through the use of materials of this sort has importance or value to the extent that it sheds light upon the effects of using two different instructional procedures with respect to selected psychological characteristics of prospective elementary teachers. As a case-study type of investigation, this study may provide the data base required for the generation of possible predictive hypotheses in future research.

Assumptions Upon Which This Study is Based

1. It is assumed that the behavioral sciences form the foundation upon which the study of education in general, and teacher-education in particular, rest.
2. It is assumed that certain products of behavioral research with respect to the problems of instruction and learning can help bridge

the theory-to-practice gap apparent in present teacher-education programs.

3. It is assumed that teacher-education experiences can be organized around the models of excellent teaching which currently do exist in a large number of public school classrooms.
4. It is assumed that the composition of various social groups and the patterns of social interaction within these groups, tend to affect the prospective elementary teacher's ability to acquire types of verbal behavior that are needed in the response repertoire of the professional teacher in the elementary classroom setting.
5. It is assumed that the pre-student-teaching course, through the use of selected Focused Observations, could become a set of experiences which could enable the prospective elementary teacher to begin to operate within the framework of a given teaching model.
6. It is assumed that the course could provide students with experience in small-scale instructional decision-making.
7. It is assumed that the course could help students develop a systematic habit of basing instructional decisions upon whatever relevant

data are available in the immediate environment of the live classroom.

8. It is assumed that the prospective elementary teachers enrolled in the Individual and the School course at Michigan State University during the Spring Quarter 1967, do not differ significantly in important respects from students enrolling in that course during the terms which follow in the near future.

Delimitations of the Study

The study is delimited as follows: (1) since this is a short-term, descriptive, case-study type of investigation, all generalizations are limited to prospective elementary teachers enrolling in pre-student-teaching courses at Michigan State University; (2) all relationships obtaining within the study are interpreted in relation to the Individual and the School course, and to the given methods of instructional use of the Focused Observations selected from the 241 behavioral descriptions available in the complete Mott Study: "Teaching in the Inner City."

Design for Evaluating Differential Effects
of the Instructional Procedures

Population (Sample) Charac-
teristics with Respect to
Selected Demographic
Factors

The population consists of college students enrolled in the Individual and the School course, a required, sophomore-level course, at Michigan State University during the Spring Quarter, 1967. The sample consists of 147 students randomly assigned to five discussion groups within the course. Each section is composed entirely of prospective elementary teachers who receive a final grade in the course. In order to prevent the bias of an unequal number of students being located in each of the five groups, a table of random numbers is used in order to eliminate the data collected on several students from the statistical analyses.

Personal data for the five groups are gathered by the use of a Personal Data Sheet, developed for this study and given during the first or second class session in the course. Student records in the Office of the Registrar are consulted for data on credit-hours carried and grade-points earned to date. Records in the Office of the Director of Evaluation Services are consulted for data on the students' College Qualification Tests scores at the time of their entry into the University.

The chi-square test of independence is used to determine, at the .05 level of confidence, whether or not any systematic biases exist among the five groups with respect to selected demographic factors as follows: marital status, sex, age, number of term hours of credit currently carried, rural versus urban background, class at college other than sophomore, socio-economic class (defined as "Working," "Middle," and "Upper"), number of students having had some type of teaching experience, and number of students having taken one or more courses in Psychology and in Education.

An analysis of variance and the F statistic is used to determine, at the .05 level of confidence, whether or not any systematic biases exist among the five groups with respect to either their entry to college scores on the College Qualification Tests or their grade-point averages earned to date at Michigan State University. An analysis of variance and the F statistic is also used to determine, at the .05 level of confidence, whether or not any systematic biases exist among the four treatment groups (to be discussed later in this chapter), with respect to their pretest scores on Focused Observations numbered 53 and 214, presenting only the problem-solving situation (see Appendix C or Figure 3.1 and Figure 3.2 in Chapter III).

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Description of the Methods of
Instructional Use of the
Materials Selected from the
Mott Study: "Teaching in
the Inner City"

During the Winter Quarter, 1966-1967, the two instructors in charge of the four treatment groups (Groups A1 and A2, and Groups B1 and B2) in the study selected one Focused Observation from each of the forty-five categories used to classify teacher behavior. The criteria and selection procedures employed resulted in the selection of forty-five Focused Observations that form the basis for the two different instructional procedures used in the study (see Appendix A).

Three experienced teachers are used as instructors, designated as instructor A, B, and C, and are in charge of Groups A, B, and C, respectively. These instructors are enrolled in the college teaching internship in educational psychology, and are employed as graduate assistants in the School of Teacher Education at Michigan State University during the 1966-1967 school year.

Instructional treatment A is assigned to Groups A (A1 and replication A2), which are under the direction of instructor A. Treatment A consists of small-group interaction of students assigned to one of five six-member small-groups. Each of these small-groups is composed of two students who had scored "High" (raw score of 17 or more), two students who had scored "Middle" (raw score

of 14 to 16), and two students who had scored "Low" (raw score of 13 or less), on their pretest need for Intraception. Treatment A features student-led discussions, an instructor who assumes a non-directive and/or accepting role as moderator in large-group discussions, and emphasizes managerial and academic alternatives with respect to solution of the problem-situations presented in the Focused Observation worksheets (see Appendix B).

Instructional treatment B is assigned to Groups B (B1 and replication B2), which are under the direction of instructor B. Treatment B consists of a variety of small-groups and large-groups formed at the beginning of and during the thirteen treatment sessions on a highly flexible basis. Treatment B features instructor-led discussions, an instructor who assumes a rather directive role in the discussions, and emphasizes psychological and social alternatives with respect to solution of the problem-situations presented in the Focused Observation worksheets (see Appendix B).

Group C is under the direction of instructor C and receives no experience in problem-solving and/or decision-making using the problem-situations presented in the Focused Observations selected from the Mott Study behavioral model of the elementary teacher. Instructor C emphasizes large-group discussions of the content presented in the lectures, book of readings, and text provided

in the course. Group C is considered to be a control group with respect to the criterion instruments designated below as Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher (see Appendix C, and Figure 3.3 and Figure 3.4 in Chapter III).

Replication Plan

Groups A (A1 and immediate replication A2) are under instructor A, and receive instructional treatment A; Groups B (B1 and immediate replication B2), are under instructor B, and receive instructional treatment B. This plan provides for an immediate replication of instructional treatment A and instructional treatment B within the design of this descriptive study.

Instrumentation Used in the Study

The instruments used to describe the sample consist of the following: (1) a Personal Data Sheet, given on the pretest in order to obtain data with respect to selected demographic factors (see Figure 4.2 in Chapter IV); (2) a Grade-Point Average, calculated for each student; and (3) scores for each student on the College Qualification Tests, designed to measure several abilities indicative of success in college.

The four treatment groups (Groups A and Groups B), are given several instruments which compose the pretest in the study: (1) the content problems drawn from

Focused Observations numbered 53 and 214, with no alternatives listed (see Figure 3.1 and Figure 3.2 in Chapter III, or Appendix C); and (2) several scales which are used to measure selected psychological characteristics representative of the response systems available to each student (see the discussion below, and Appendix D). A comparison of the responses of Groups A and Groups B with respect to these instruments enable the researcher to determine whether or not any systematic biases exist among the treatment groups with respect to each of the following: (1) divergent thinking; (2) flexible endorsement; (3) ease/difficulty of producing and endorsing alternative actions; (4) the motivational system; (5) the attitudinal system; and (6) the self system.

Following the treatment period, Groups A, B, and C, are given the criterion instruments designated as the criterion test: (1) the content problems drawn from Focused Observations numbered 53 and 214, with no alternatives listed; and (2) the content problems drawn from Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher (see Figure 3.3 and Figure 3.4 in Chapter III, or Appendix C). A comparison of the responses of the five groups with respect to these criterion instruments enable the researcher to determine the effects of the instructional procedures on each of the following: (1) divergent thinking;

(2) flexible endorsement; and (3) ease/difficulty of producing and endorsing alternative actions.

After the treatment period, Groups A and Groups B are given several instruments which compose the post-test in the study: (1) Focused Observations numbered 53 and 214, with no alternatives listed; and (2) several scales which are used to measure selected psychological characteristics representative of the response systems available to each student (see Appendix D). A comparison of the responses of the four groups with respect to the criterion instruments enable the researcher to determine the effects of the instructional procedures on each of the following: (1) divergent thinking; (2) flexible endorsement; (3) ease/difficulty of producing and endorsing alternative actions. The responses of the four treatment groups on these criterion instruments (post-test score minus the influence of the pretest score), are then correlated with their responses on the several psychological scales.

Several scales, used on both the pretest and post-test with respect to both Groups A and Groups B, are used to tap selected psychological characteristics representative of the response systems available to prospective elementary teachers.

Motivational System

The motivational system is tapped by the Intra-ception scale, drawn from the Edwards Personal Preference Schedule.¹⁵ This scale has an internal consistency coefficient of .79, a stability coefficient of .86, a mean of 17.00, a standard deviation of 5.60, general face validity, and consists of statements representing the need "To analyze one's motives and feelings" and "To understand how others feel."

In addition, the motivational system is tapped by four factors drawn from the Sixteen Personality Factor Questionnaire, Form A, a factor analyzed battery which yields bipolar descriptions of sixteen source traits or personality dimensions possessing both construct and criterion validity.¹⁶

Factor A, which purports to measure the "warm, sociable" as opposed to "aloof, stiff" personality, has a split-half reliability coefficient of .90, a validity coefficient of .88, and tends to be highly correlated with teaching as an occupation.

Factor I, which purports to measure the "sensitive" as opposed to "tough, realistic" personality, has a

¹⁵Allen L. Edwards, Edwards Personal Preference Schedule Manual (New York: The Psychological Corporation, 1959).

¹⁶Raymond B. Cattell and Herbert W. Eber, Handbook for the Sixteen Personality Factor Questionnaire (Champaign, Illinois: The Institute for Personality and Ability Testing, 1962).

split-half reliability coefficient of .76, a validity coefficient of .84, and tends to be correlated with actions that are termed intuitive.

Factor M, which purports to measure the "introverted" as opposed to the "practical" personality, has a split-half reliability coefficient of .88, a validity coefficient of .74, and tends to distinguish more creative researchers from more creative teachers.

Factor Q1, which purports to measure "radicalism" as opposed to "conservatism" of temperament, has a split-half reliability coefficient of .71, a validity coefficient of .74, and tends to be associated with persons who are well informed and more inclined to experiment with problem-solving situations.

Cognitive System

The cognitive system is tapped by two tests developed by the evaluation and measurement expert assigned to the Individual and the School course, and is based upon the content offered in the lectures, and assigned readings in the text and book of readings provided in the course during the Spring Quarter, 1967. The common Mid-Term Examination consists of forty-five multiple-choice and true-false items, and the common Final Examination consists of ninety multiple-choice and true-false items. These examinations are common departmental tests given to all students enrolled in the course.

Attitudinal System

The attitudinal system is tapped by The Orientation Inventory, which was developed to assess self-orientation, interaction-orientation, and task-orientation by means of twenty-seven statements regarding attitudes to which the individual responds by choosing both the least and most preferred of three alternatives presented.¹⁷ Three scores are obtained from this inventory: (1) S--Self-Orientation, which reflects concern with oneself, has a test-retest reliability coefficient of .73, has both concurrent and construct validity, and tends to be associated with rejected and introspective individuals; (2) I--Interaction-Orientation, which reflects concern with maintaining harmonious relationships in group activities, has a test-retest reliability coefficient of .76, has both concurrent and construct validity, and is associated with an individual's interest in group activities; and (3) T--Task-Orientation, which reflects concern with solving problems, has a test-retest reliability coefficient of .75, has both concurrent and construct validity, and is associated with working hard within a group to make it productive.

In addition, the attitudinal system is tapped by the students' endorsement of two vocational values, "Relations

¹⁷Bernard M. Bass, The Orientation Inventory Manual (Palo Alto, California: Consulting Psychologists Press, Inc., 1962).

With Others" and "Service to Others."^{18,19} The vocational value "Relations With Others" is described as "a job where I can work with people I like," has a mean of 4.65, and a standard deviation of 1.97 when endorsed by 187 twelfth-grade girls.* The vocational value "Service to Others" is described as "a job where I can help people," and was endorsed as the most important among ten vocational values by 14 per cent of fifty-seven ninth-grade students at the end of a full-year group educational and vocational guidance course.*

Self System

The self system is tapped by three self-concept ratings and involves the use of a list of twenty-nine adjectives drawn from a study reported in The Adjective Check List Manual.²⁰ Each student in Groups A and Groups

* Note: Due to the instructions employed, the lower the mean, the higher the ranking of the value.

¹⁸W. J. Dipboye and W. F. Anderson, "The Ordering of Occupational Values by High School Freshman and Seniors," The Personnel and Guidance Journal, XXXVIII (1959), pp. 121-124.

¹⁹Lyman Van Winkle, Jr., "A Study to Determine the Probability of Relationships Between the Educational and Vocational Goals of Ninth Grade Students in Hile Junior High School and Their Level of Acceptance of These Goals for Self-Actualization" (unpublished Master's thesis, Michigan State University, 1960).

²⁰Harrison G. Gough and Alfred B. Heilbrun, Jr., The Adjective Check List Manual (Palo Alto, California: Consulting Psychologists Press, 1965).

B will be asked to first describe himself ("MYSELF"), then to take the list a second time describing his ideal self ("MY IDEAL SELF"), and finally, to take the list a third time describing himself as a teacher ("MYSELF AS A TEACHER").

Examining Data for Change

Change in divergent thinking is measured by the total number of alternative actions generated and/or proposed by the student, with respect to the problem-solving situation offered in Focused Observations numbered 53 and 214, presenting only the problem-solving situation (see Appendix C or Figure 3.1 and Figure 3.2 in Chapter III).

Change in flexible endorsement is measured by the student's decision to award a B or C as opposed to an A or D letter rating to alternative actions on each of the following: (1) alternative actions given by the student himself to the problem-solving situation presented in Focused Observations numbered 53 and 214, presenting only the problem-solving situation (see Appendix C); and (2) twelve alternative actions listed by the researcher to the same problem-solving situations, of which three are Academic, three are Psychological, three are Managerial, and three are Social, in content (see Appendix C, or Figure 3.3 and Figure 3.4 in Chapter III).

Change in ease/difficulty of both producing and endorsing alternative actions is measured by the relative ease or difficulty (self-reported by the student), to

have been experienced in rating the alternative actions, given either by the student himself, or by the researcher on the basis of previous research (see Appendix C).

The selected scales, administered to Groups A and Groups B, are used to measure the students in these groups with reference to selected psychological characteristics representative of the four response systems available to each prospective elementary teacher as follows: (1) the motivational system is measured by the Intracception scale (Edward's Personal Preference Schedule, Edwards, 1954), and Factor A, Factor I, Factor M, and Factor Q1 (Sixteen Personality Factor Questionnaire, Form A, Cattell, 1962); (2) the cognitive system is measured by the scores received on the Mid-Term Examination and Final Examination in the Individual and the School course; (3) the attitudinal system is measured by the Self-Orientation, Interaction-Orientation, and Task-Orientation scales (The Orientation Inventory, Bass, 1962), as well as by the vocational values "Relations With Others" (Dipboye and Anderson, 1959) and "Service to Others" (Van Winkle, 1960); and (4) the self system is measured by three self-concept ratings, using twenty-nine adjectives (drawn from a study reported in The Adjective Check List Manual, Gough and Heilbrun, 1965), rated in terms of the following: "MYSELF," "MY IDEAL SELF," and "MYSELF AS A TEACHER."

Statistical Analyses

The chi-square test of independence is used to determine whether or not relationships exist among the five groups with respect to nine selected demographic factors. An analysis of variance is used with respect to (1) data on variables common to all five groups, and (2) data on variables common to the four treatment groups.

Correlation coefficients are calculated with respect to data on variables common to the four treatment groups. Partial correlation coefficients, with the influence of the pretest scores partialled out on each of the criterion instruments used on the pretest, are computed with respect to the treatment groups' responses on the criterion test and their responses on the several scales used to measure individual personality characteristics in the study. Significance of all statistical tests is established at the .05 level of confidence.

Definition of Terms Used in the Study

1. Instructional Procedures is defined as two methods (treatments A and B in this study), of presenting a behavioral model of the elementary teacher to prospective elementary teachers.
2. Mott Study: "Teaching in the Inner City" is defined as the public school teacher behavioral model, presented in 241 Focused

Observations, and recently published by the Learning Systems Institute at Michigan State University.

3. Focused Observation is defined as 241 one-page problem-solving and/or decision-making situations, each consisting essentially of five parts as follows: (1) SITUATION: a terse description of the actual problem situation; (2) ACTION: the teacher's actual behavior in dealing with the problem; (3) CONSEQUENCES: the actual results of the teacher's decision with respect to a sound solution to the problem; (4) RATIONALE: the reasons offered by the teacher for his behavior and the hypothesis(es) upon which he operated; and (5) GENERALIZATION: the principle(s) drawn from the content of educational psychology which relates to the teacher's action in making a decision(s) regarding the problem-solving situation presented. Forty-five Focused Observations were selected from the behavioral model by instructors A and B as appropriate for instructional use in the Individual and the School course. Thirty-five of these worksheets are common to the four treatment groups; five are unique to Groups A, and five are unique to Groups B, and these content problems are used as the basis for a written report in the course.

4. Focused Observation Worksheet is defined as forty-five content problems, selected by instructor A and instructor B as representative and appropriate for classroom presentation and use in the Individual and the School course. Each one-page worksheet consists of the following: "SITUATION": a problem-solving situation selected from the behavioral model; (2) the question: "What could you do?"; (3) "ACTION": List the alternatives (actions) that the teacher could take"; (4) "CONSEQUENCES"; and (5) "Give reasons for your choice of alternative above." Several spaces on each worksheet, were provided after (3), (4), and (5) above, so that the student could react to each content problem in writing.
5. Criterion Test is defined as four criterion instruments, developed by instructors A and B, and based upon the content problem offered in two Focused Observations selected by these instructors as being representative and appropriate for use in this study. Two of these criterion instruments, presenting the content problem drawn from Focused Observations numbered 53 and 214, and using the format discussed in the definition of Focused Observation Worksheet above, are used as part of the pretest

and post-test with respect to Groups A and Groups B in this study. Also, an additional two criterion instruments, presenting the same content problems, with twelve alternative actions listed by the researcher, of which three are Academic, three are Psychological, three are Managerial, and three are Social, in content, and are used as part of the post-test with respect to Groups A, B, and C, in this study.

6. Divergent Thinking is defined as the generation of a variety of possible alternative actions an elementary teacher could take with respect to the problem-solving situations presented in forty-five Focused Observation worksheets (see Appendix B).
7. Flexible Endorsement is defined as either a B or C letter rating being awarded the alternative actions, given either by the prospective elementary teacher or by the researcher on the basis of previous research, and using a four-part scale of endorsement as follows:
 - A Strongly Agree--Always Use
 - B Agree--More Often Than Not Use--Use Most of the Time
 - C Disagree--Occasionally Use--Use Some of the Time

D Strongly Disagree--Never Use

8. Ease/Difficulty is defined as the degree of ease or difficulty (self-reported by the student), to have been experienced in rating the given alternative actions, and using a six equal-part scale, ranging from "Easy" to "Difficult," as follows:

very easy	rather easy	easy	difficult	rather difficult	very difficult
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9. Individual Psychological System is defined in terms of four response systems available to the learner (and to the prospective elementary teacher in this study), as follows: (1) a motivational system; (2) a cognitive system; (3) an attitudinal system; and (4) a self system.
10. Prospective Elementary Teacher is defined as a student, usually classified as having sophomore-class standing, enrolled in the required, pre-student-teaching course, Individual and the School, at Michigan State University, during the Spring Quarter, 1967.
11. Treatment Period is defined as the term beginning on April 4, 1967, and ending on June 1, 1967, consisting of thirteen days of group discussion,

under the direction of an experienced college-teaching intern, each treatment session fifty minutes in length, and available to students enrolled in the Individual and the School course.

12. Discussion Group is defined as: (1) large group, and (2) sixteen groups of about thirty students each, which meet on Tuesdays and Thursdays with their respective discussion leaders in the course during the Spring Quarter, 1967.
13. Small-Group is defined as (1) the five sub-groups of six students each, found only in Groups A (A1 and replication A2), and composed of two students who scored in the "High" one-third (raw score of 17 or more), two students who scored in the "Middle" one-third (raw score of 14 to 16), and two students who scored in the "Low" one-third (raw score 13 or less), on the pretest administration of the Intracception scale drawn from the Edward's Personal Preference Schedule; and (2) the many sub-groups, ranging from fourteen two-person groups to two fifteen-person groups, found only in Groups B (B1 and replication B2), and formed before and re-grouped during each treatment

session using various criteria and on a highly flexible basis (see Chapter V).

14. Instructional Treatment A is defined as the instructional use of the forty Focused Observations selected by instructor A and instructor B from the 241 Focused Observations available in the complete Mott Study. Treatment A is assigned to Groups A (A1 and replication A2), which are under the direction of instructor A. This treatment features student-led discussions, an instructor who assumes a non-directive and/or accepting role as moderator in large-group discussions, and emphasizes managerial and academic alternatives with respect to solution of the problem-solving situations presented in forty Focused Observation worksheets (see Appendix B).
15. Instructional Treatment B is defined as the instructional use of forty Focused Observations selected by instructor A and instructor B from the 241 Focused Observations available in the complete Mott Study. Treatment B is assigned to Groups B (B1 and replication B2), which are under the direction of instructor B. This treatment features instructor-led discussions, an instructor who assumes a rather directive

role in group discussions, and emphasizes psychological and social alternatives with respect to solution of the problem-solving situations presented in forty Focused Observation worksheets (see Appendix B).

16. Group C is defined as the control group, which is under the direction of instructor C, and receives no experience with the specific instructional treatments A and B. Instructor C emphasizes large-group discussions of the content offered in the lectures, book of readings, and text provided in the course.

Overview of the Chapters Which Follow in the Study

In Chapter II, a review of relevant research with respect to problem-solving, divergent thinking, and decision-making, is presented.

In Chapter III, the general design for this descriptive research, the statistical analyses employed, the developmental history and description of the Learning Systems Institute's Mott Study: "Teaching in the Inner City," and data relevant to the validity and reliability of the instruments used in the study, are presented.

In Chapter IV, a description of the Individual and the School course, the qualifications of the instructors, the population, the sample, the statistical sample, the

grouping and administrative procedures used in Groups A and Groups B, and the data collection procedures used in the study, are presented.

In Chapter V, the detailed daily diaries for the treatment period, as recorded by instructor A for Groups A (A1 and replication A2), and instructor B for Groups B (B1 and replication B2), are presented.

In Chapter VI, the results for Groups A, B, and C with respect to divergent thinking, flexible endorsement, and ease/difficulty of producing and endorsing alternatives, as well as results for Groups A and B with respect to the several scales used to measure individual psychological response systems of learners, are presented.

In Chapter VII, a summary of the results of this study, and its implications for both pre-service education of prospective elementary teachers and for teaching in inner city school environments, are presented.

CHAPTER II

REVIEW OF THE LITERATURE

Problem-Solving and/or Decision-Making

Historical Perspective

Some fifty-three years ago, John Dewey made a significant criticism of our schools when he stated:

From the standpoint of the child, the great waste in the school comes from his inability to utilize the experience he gets outside school in any complete and free way within the school itself; while on the other hand, he is unable to apply in daily life what he is learning at school--its isolation from life.¹

A key conception in the experimentalist philosophy of education was a supreme confidence in human intelligence as the instrument for man to solve his problems and achieve his values.² The primary goal of human intelligence was to improve conduct and to solve practical problems, from the simple and lowly to the elevated and complex. Theory was not an intellectual virtue to be valued for its own

¹John Dewey, The School and Society (2nd ed.; Chicago: University of Chicago Press, 1915), p. 67.

²Phillip Phenix, ed., Philosophies of Education (New York: John Wiley and Sons, Inc., 1961), pp. 10-16.

sake, but rather, theory and ideas were to be highly valued for the aid they provide in improving the quality of human experience.

The scientific method of problem-solving, propounded by Dewey, was widely recognized in its time, as a generalized method of intelligence appropriate to the solution of practical problems. This method of inquiry consisted of a five step process of thought as follows: (1) becoming concerned about or interested in a problem; (2) defining the problem and assembling the materials with which to work; (3) deriving a number of possible relevant solutions, hypotheses, creative ideas; (4) evaluating the possible solutions via thinking, conception, judgment, reasoning; and (5) objectively testing and revising solutions, implying acceptance or rejection as well as further observation and testing.³

An early adaptation of the scientific method formed the basis of the "project method" approach to education in the laboratory school at the University of Chicago in 1896. The proper subject matter of education concerned the expressive or constructive activities involved in the process of solving problems.⁴ By actively solving

³John Dewey, Democracy and Education (New York: Macmillan, 1916), pp. 151-163.

⁴John Dewey, Experience and Education (Published in 1936 by Kappa Delta Pi; New York: Collier Books, 1963).

problems, it was assumed, the learner changed his behavior. This idea was carried further by Buswell:

We as teachers must insure that the education which we provide involves learning not only how to create, but the necessity of creation; not only how to participate in life, but the essential value of participation.⁵

Recently, an expert on curriculum and instruction stated:

For a given objective to be obtained, a student must have experiences that give him an opportunity to practice the kind of behavior implied by the objective. That is to say, if one of the objectives is to develop skills in problem solving, this cannot be attained unless the learning experiences give the student ample opportunity to solve problems.⁶

By reproducing the problem-solving strategies of electronic troubleshooters and developing a simulated program of the problem-solving process, Fattu was able to significantly increase teachers' problem-solving skills through increased amount of practice.⁷ In the "new"

⁵James O. Buswell, "Perspective by Participation," Improving College and University Teaching, VIII (Spring, 1960), 57-59.

⁶Ralph W. Tyler, Basic Principles of Curriculum and Instruction (Chicago: University of Chicago Press, 1950), p. 42.

⁷Nicholas A. Fattu, "A Model of Teaching as Problem Solving," Theories of Instruction (Washington, D. C.: Association for Supervision and Curriculum Development, 1965), pp. 62-87.

experimental science of human behavior, change is deliberately brought about in order to learn from the experiment. The experimental practice of knowing through action may eliminate the traditional separation of theory and practice.

The Apparent Gap Between Research and Practice

However, in practice to date, educational research . . . has not influenced practice enough to justify its existence . . . over 85 per cent of the studies are efforts to describe some part of education without functional ties that demonstrate the power of manipulanda under the control of the teacher and pupil . . . less than 15 per cent of research studies are experiments.⁸

Other psychologists noted earlier that:

In terms of practical application, much (if not most) of theoretical psychology is of little value. If we exclude the interesting anecdotes of Guthrie, contemporary learning theory is not of much use to school teachers.⁹

An outspoken critic of teacher education specifically noted: "Student teaching is commonly thought to make up for the absence of demonstrations and applications

⁸Finley Carpenter and Eugene E. Hadden, Systematic Application of Psychology to Education (New York: Macmillan, 1964), p. 227.

⁹K. MacCorquodale and P. E. Meehl, "Hypothetical Constructs and Intervening Variables," The Psychological Review, LV (1948), cited in Herbert Feigl and Mary Brodbeck, eds., Readings in the Philosophy of Science (New York: Appleton-Century-Crofts, 1953), p. 608.

in other parts of the teacher-education program."¹⁰

Conant stated:

My criticism of the education of elementary teachers . . . would be that far too often too little time is devoted to the right kind of methods course, though time may be wasted on courses in which practice and theory are not sufficiently combined.¹¹

This point may be documented by an earlier study which compared educational beliefs with educational practice. Classroom observation of elementary school teachers indicated that they were simply not implementing their educational beliefs in their classrooms, and this fact was attributed to an apparent failure of teacher-training institutions to provide prospective teachers with a genuine understanding of principles and of the techniques required to put these beliefs into educational practice.¹² A decade later, Wallen and Travers suggested that

¹⁰Myron Lieberman, The Future of Public Education (Chicago: University of Chicago Press, 1960), p. 114.

¹¹James B. Conant, The Education of American Teachers (New York: McGraw-Hill, 1964), p. 141.

¹²W. A. Oliver, "Teachers' Educational Beliefs vs. Their Classroom Practices," Journal of Educational Research, XLVII (1953), 47-55.

. . . most teacher-training programs do little to develop in the teacher-trainee any action system through which the results of teacher training may be manifested in the classroom.¹³

At a recent conference focusing upon problems in teacher education, Davies asked an essential question, "Does teacher education make a demonstrable difference in how teachers teach?"¹⁴ Schueler commented upon the current interest in the problem of making teacher education more meaningful in urban settings.¹⁵ At the same conference, Barnes pointedly identified areas of concern including the "slippage between theory and practice."¹⁶ An essential question then seems to be: How can a link be forged between theory and practice?

The Teacher as a Hypothesis Generator and Decision- Maker

When things go wrong, the classroom teacher alone must be prepared to make an intelligent diagnosis, and

¹³Norman E. Wallen and Robert M. W. Travers, "Analysis and Investigation of Teaching Methods," in Handbook of Research on Teaching, ed. by N. L. Gage (Chicago: Rand McNally and Company, 1963), pp. 448-505.

¹⁴Donald Davies, "Exciting Prospects: A Subjective Summary," in Improving Teacher Education in the United States, ed. by Stanley Elam (Bloomington, Indiana: Phi Delta Kappa, Inc., 1967), pp. 207-214.

¹⁵Herbert Schueler, "Making Teacher Education Meaningful in Urban Settings," in ibid., pp. 79-101.

¹⁶Melvin W. Barnes, "Building School-University Relations in Teacher Education," in ibid., pp. 137-163.

to set up plausible prescriptions for the amelioration of the problems encountered. Problems, hypotheses, hypothesis testing, interpretation, and changing practices to harmonize with experimental data, are all phases of sound teaching.

It seems reasonable to suggest that the teacher is a hypothesis generator since he is always dealing with the future, i.e., making predictions, calculating risks and values, and evaluating the outcomes of his decisions. These operational plans or tentative hypotheses may be carefully reasoned and based upon substantial knowledge, but we also know that these predictions at their worst, could arise from ignorance, bias, and emotion. One psychotherapist suggested that the learning person is willing to be a process that continually changes throughout his life-span, and also, is willing to learn from disappointing situations and personal mistakes which are inevitable in real-life.¹⁷

Coleman succinctly stated: "The mature person realizes, too, that decision-making is by necessity a process of taking calculated risks and that he cannot hope to win every time."¹⁸ Decision-making is a process

¹⁷Carl R. Rogers, "What It Means to Become a Person," in The Self, ed. by Clark E. Moustakes (New York: Harpers, 1956).

¹⁸James C. Coleman, Personality Dynamics and Effective Behavior (Fairlawn, New Jersey: Scott, Foresman and Co., 1960), p. 193.

of weighing possible satisfactions against risk and probable cost. We can never be sure that a decision will work out according to plan simply because we cannot anticipate all chance factors or control all relevant variables. Few, if any, of the problems we face in actual life inside or outside of the classroom have clearcut, simple, ideal, or only solutions.

The authors of an excellent volume on perceptual behavior document this fact when they stated:

. . . education must value change . . . Educators can no longer afford to deplore and resist change. Too many teachers are still insisting that things must be done the "right" way.¹⁹

These same authors, in talking about evidences of divergent thinking, and creative teaching and learning in the classroom, noted the imperative need for the following:

. . . less questing for the right answer; more open-ended questions with room for difference and the exploration of many questions . . . Ideas are explored; there is an honest respect for solid information, an attitude of "lets find out."²⁰

According to Harootunian, three factors are crucial to educational decision-making on the part of the teacher:

(1) the clarity of values or desired ends which give direction to the decision-making; (2) the relative

¹⁹ Arthur W. Combs, Earl C. Kelley, Abraham H. Mazlow, and Carl R. Rogers, Perceiving, Behaving, Becoming (Washington, D. C.: Association for Supervision and Curriculum Development, 1962), p. 207.

²⁰ Ibid., p. 237.

completeness of pertinent knowledge which is the basis for identifying problems and for determining the alternatives available and the consequences of following these actions; and (3) the amount of time available, for reflection, if any, before a choice must be made.²¹

The Current Study Related
to Problem-Solving and/or
Decision-Making and Be-
havioral Change

The fact that a prospective elementary teacher has learned to solve problems of the nature that he will likely face in his own classroom in the future, in itself is no guarantee that he will in fact be able to do so. A critic of teacher education stated: ". . . the ability to write test answers would not insure the ability to function effectively in the classroom. . . ." ²² However, having been denied the opportunity to solve problems actually faced by classroom teachers, severely reduces the probability of his being able to rationally make the decisions and to effectively solve the problems when they do occur in the future.

The teacher who has a range of alternatives available to him, will probably be more flexible in his

²¹Berj Harootunian, "The Teacher as Problem Solver: Extra-Class Decision-Making," Paper read at the annual meeting of the American Educational Research Association, Chicago, February 19, 1966, pp. 8-9.

²²Conant, op. cit., p. 58.

teaching, because he can make the instructional decision to switch to an alternative action to meet new or unexpected instructional requirements. In the absence of possible alternative actions, there are no instructional decisions to make, and as a result, this teacher tends to be limited in his control of decisions in the classroom.²³

Therefore, it is assumed that with experience in solving classroom problems drawn from the Mott Study behavioral model, prospective elementary teachers may develop their capabilities of (1) producing many divergent alternative actions to problems, (2) making decisions among these alternatives in view of their probable consequences, and (3) reducing the dissonance they experience in both producing and endorsing alternative actions.

In a recent speech to the American Educational Research Association on the topic of production of alternatives to problems, Joyce noted that teachers must become conscious producers of a wide spectrum of environmental variables so as to eventually result in curriculums in which the environment changes in ways that significantly affect the experience of the learner. The new role-function of the classroom teacher becomes one of shaping learner roles and the social climate, of selecting and

²³Harootunian, op. cit., p. 9.

producing teaching roles, tactics and feedback systems, and of selecting and organizing content and the vehicles required for its presentation.²⁴

R. M. Gagne offered a precise technical description of the factors that determine learning, derived from controlled experimentation over the last several decades. This researcher differentiated eight varieties of learning, each of which requires a different set of conditions for it to occur, and each building upon all preceding steps in, or types of, learning. His premise is not that all learning is the same (after Thorndike), but rather, that all human activities are learned, (after Skinner; and others). He assumes that each of the eight varieties of learning begins with a different state of the organism and ends with, or results in, a different capability for performance.²⁵

The current study involves the type of learning at the zenith of Gagne's hierarchy, labeled Type 8: Problem Solving. The prerequisites for this type of learning are all the preceding types. Problem solving here is defined as a kind of learning that requires the internal

²⁴Bruce R. Joyce, "The Learning Experience as a Restrictive Concept: The Production of Alternatives," Paper read at the annual meeting of the American Educational Research Association, Chicago, February 1966.

²⁵R. M. Gagne, The Conditions of Learning (New York: Holt, Rinehart, and Winston, Inc., 1965), pp. 57-60.

organismic events usually termed thinking. In the thinking process, two or more principles previously acquired are combined, or internally connected, in some way to produce a new capability in the learner.

An educational psychologist who has studied thinking in elementary school children, believed that thought consisted of specific, describable processes which are subject to training. Taba has embarked upon designing a computer program as an aid in accounting for the various combinations of appropriate teaching strategies which interact with the acquisition of skills necessary to the development of autonomous thinking.²⁶

However, there may be a problem of transfer of learning, in that much of what is learned does not reflect itself in the individual's general response repertoire. Studies of problem-solving indicate that individuals who have acquired specific responses frequently do not use them in a problem situation.²⁷ The body of research published about the transfer of knowledge seems to indicate that positive transfer can be

²⁶Hilda Taba, Samuel Levine, and Freeman Elzey, Thinking in Elementary School Children, U. S. Department of Health, Education, and Welfare, U. S. Office of Education, Cooperative Research Project No. 1574 (San Francisco: San Francisco State College, 1964).

²⁷R. E. Gross and F. J. McDonald, "Classroom Methods III. The Problem Solving Approach," Phi Delta Kappan, XXXIX (1958), 259-265.

induced by verbal questions of the problem-solving variety, and also, can be more effective when students are introjected into the situation in a highly realistic manner.²⁸

In a paper presented at the 1966 American Educational Research Association meeting in Chicago, Popham noted that the basic problem in teacher education is to modify the teacher's actual instructional behavior in desired directions and that we work on the assumption that change in attitudes and knowledge will somehow result in later modification of the teacher's actual classroom behavior.²⁹

Popham has undertaken research designed to test the efficacy of four video-taped instructional sequences in bringing about specific test (two cognitive and one affective criteria were employed) behavior change in prospective teachers which may be relevant to the teacher's classroom behavior. The focus of this

²⁸Clifford T. Morgan and Richard A. King, Introduction to Psychology (New York: McGraw-Hill, 1966), pp. 110, 129-133, 175; Anne Anastasi, Fields of Applied Psychology (New York: McGraw-Hill, 1964), pp. 112, 489; L. Dodge Fernald, Jr., Experiments and Studies in General Psychology (New York: Houghton Mifflin, 1965), pp. 47-53; and H. Harlow, "The Formation of Learning Sets," Psychological Review, LVI (1949), 51-65.

²⁹W. James Popham, "Relationship Between Highly Specific Instructional Video Tapes and Certain Behaviors of Pre-Service Teachers," Paper read at the annual meeting of the American Educational Research Association, Chicago, February 1966, p. 2.

investigation was upon the student's ability to identify the presence of certain instructional principles in the video-taped teaching situations. He assumed that this stimulus was closer to a real classroom situation than written descriptions of such activities. Currently, research is underway to learn whether student performance on the video-tape post-test is related to subsequent performance in actual teaching situations.³⁰

In the absence of these possibilities during the current research study, it was felt that a new, vivid, realistic model of effective teacher performance (presented in printed form with appropriate comments to provide the basis for a desired set of expectancies), could suffice in providing the realism thought to be both necessary and desirable in maximizing positive transfer of knowledge and in producing new capabilities in prospective elementary teachers.

Divergent Thinking and the
"Structure-of-Intellect"
Model

History of the Theory of
Intellectual Abilities

The scientific study of human and animal intelligence has traditionally focused on two fundamental questions: first, how many abilities are involved, and

³⁰Ibid., p. 8.

second, what is the essential nature of the abilities that we call intelligence. Binet and Simon, who developed the first successful intelligence test, used a single score, the "mental age." In The Abilities of Man, Spearman developed a two-component theory of intellectual ability which consisted of "g" for a general ability (the total mental energy available to a person), and "s" which was a specific ability and differs from one test to another.³¹

In America, L. L. Thurstone developed multiple factor analysis and via these complex mathematical techniques it was possible to find a set of separate factors that account for the correlations in a battery of tests. In his first large-scale study in 1938, in which he used volunteer college students as subjects, Thurstone was able to identify nine "primary abilities."³² Later research identified seven of these factors in research using eighth-grade children, and six of these factors in kindergarten children.³³

³¹C. E. Spearman, The Abilities of Man (New York: Macmillan, 1927).

³²L. L. Thurstone, Primary Mental Abilities, Psychometric Monograph, No. 1 (Chicago: University of Chicago Press, 1938).

³³L. L. Thurstone and T. G. Thurstone, Factorial Studies of Intelligence, Psychometric Monograph, No. 2 (Chicago: University of Chicago Press, 1941); T. G. Thurstone, "Primary Mental Abilities of Children," Educational and Psychological Measurement, I (1941), 105-116.

During and after World War II, Thurstone's "primary" abilities were broken down into other abilities still more "primary." In 1941, Carroll identified nine verbal abilities in place of the V (verbal meanings) and W (word fluency) factors that Thurstone had identified.³⁴ In 1944, L. L. Thurstone reported finding ten perceptual factors.³⁵ Out of many such analyses, and into the chaos of partially independent factors, order was brought by the sustained program of research undertaken by J. P. Guilford for the Army Air Force.³⁶

The "Structure-of-Intellect" Model

J. P. Guilford is director of a long-term factor analytic study of cognitive and thinking abilities, the Aptitudes Project at the University of California. Taking the known factors of intelligence and their common properties, Guilford related each to one another in a cubical model representing the "Structure-of-Intellect," a three-dimensional system analogous to the periodic table of elements in chemistry. This system consists of four

³⁴J. B. Carroll, "A Factor Analysis of Verbal Abilities," Psychometrika, VI (1941), 279-308.

³⁵L. L. Thurstone, A Factorial Study of Perception (Chicago: University of Chicago Press, 1944).

³⁶J. P. Guilford, ed., Printed Classification Tests, Army Air Force Aviation Psychology Report, No. 5 (Washington, D. C.: U. S. Government Printing Office, 1947).

types of contents, five types of operations, and six types of products, which combine to yield 120 factors of intellect.³⁷

Using the contents or materials to be thought about as a basis for classifying abilities, four types of content emerge: (1) figural, consisting of concrete material such as sizes, forms, colors, textures, and other things we can see or feel; (2) symbolic, involving letters, digits, and other signs, usually organized in general systems such as the alphabet; (3) semantic, consisting of verbal meanings and ideas which are usually tapped by abilities called verbal comprehension and general reasoning; and (4) behavioral, involving social situations of various kinds, so far not explored to any extent in intelligence testing.

The second major principle of classification of the factors is in terms of the kind of mental operations performed by the thinker. There are five classes: (1) cognition, defined as rediscovery or recognition of information, understanding, or comprehension; (2) memory, defined as retention or storage of what is cognized; (3) divergent production, thought to be uniquely important for creative thinking, heretofore almost completely ignored in intelligence testing, and defined as the

³⁷J. P. Guilford, "Three Faces of Intellect," The American Psychologist, XIV (1959b), 469-479.

production of a variety of answers to a test problem or stimuli; (4) convergent production, defined as the processing of information in such a way that the individual is led to the correct or best answer to a problem; and (5) evaluation, which involves the reaching of decisions as to how correct sound, or adequate the results of one's cognizing have been.³⁸

The third major principle of classification of the factors relates to the forms of products or the kind of answers the subject is asked to produce. The products are divided into six classes: (1) units or segregated items of information having "thing" character; (2) classes or compilations of items of information possessing recognized common properties; (3) relations or recognized connections between items of information; (4) systems or organized items of information of interacting or interrelated parts; (5) transformations or changes, revisions, or reinterpretations of information; and (6) implications or natural extensions or extrapolations of information.³⁹

One researcher suggested that: ". . . the primary intellectual goal of teacher education is the identification and application of heuristic strategies to teaching."⁴⁰ The "Structure-of-Intellect" model is a

³⁸Ibid., p. 470. ³⁹Ibid., pp. 469-477.

⁴⁰Harootunian, op. cit., p. 10.

heuristic theory supported by evidence connected with known unique intellectual abilities and their recognized properties, and connected with about half of the 120 cells in the model.⁴¹

A large proportion of these factors have shown up in factor analyses carried out to date, mainly due to the fact that Guilford's theoretical system has made it possible to design new tests to fit vacant cells in the "Structure-of-Intellect" model. However, the least adequate knowledge is available with respect to the operations and products to be tested in measuring abilities in the behavioral domain. This is largely due to the fact that no satisfactory technology has ever been achieved in measuring social intelligence.

Another area of important research concern has been the distinction between convergent and divergent thinking, and further, its bearing upon individual differences in creativity.⁴²

⁴¹J. P. Guilford, Personality (New York: McGraw-Hill, 1959a); Guilford, loc. cit., 1959b; and J. P. Guilford and P. R. Merrifield, "The Structure-of-Intellect Model: Its Uses and Implications," Reports from the Psychological Laboratory, No. 24 (Los Angeles: University of Southern California, 1960).

⁴²J. P. Guilford, "Potentiality for Creativity and Its Measurement," in Readings for Introductory Psychology, ed. by R. C. Teevan and R. C. Birney (New York: Harcourt, Brace and World, Inc., 1965), pp. 439-443.

The unique feature of divergent production is that a variety of responses is produced. The product is not completely determined by the given information. This is not to say that divergent thinking does not come into play in the total process of reaching a unique conclusion, for it comes into play whenever there is trial-and-error-thinking.⁴³

It seems to be the case that the creative person excels in the abilities involved in the thinking of new answers and different possible alternative solutions to a problem-solving situation.

Aschner defined divergent thinking essentially as follows: Individuals are free to generate independently their own data within a data-poor situation, often taking a new direction or perspective.⁴⁴ This researcher has studied the relationships between what teachers and students say and do in the transactions of instruction, and her category system deals with examples of discussion behavior related to the thought operations they reflect and analysis of these behaviors relative to the products they may represent.⁴⁵ Her Category System is based upon

⁴³Guilford, op. cit., 1959a, p. 473.

⁴⁴Mary Jane Aschner et al., "A System for Classifying Through Process in the Context of Classroom Verbal Interaction," Institute for Research on Exceptional Children, University of Illinois, 1962.

⁴⁵Mary Jane Aschner, "The Analysis of Verbal Interaction in the Classroom," in Theory and Research in Teaching, ed. by Arno Bellack (New York: Bureau of Publications, Teachers College, Columbia University, 1963), pp. 53-78.

Guilford's three-dimensional "Structure-of-Intellect" model.⁴⁶

The "Structure-of-Intellect"
Model Related to Problem-
Solving and/or Decision-
Making

The current study makes use of those inputs or contents labeled as semantic and behavioral, the operations labeled divergent production and evaluation, and those outputs or products labeled relations, systems, transformations, and implications. More specifically, the current study may illuminate the behavioral contents, divergent production operations, and implications products cell located within the "Structure-of-Intellect" model of J. P. Guilford.

In developing a kind of systematic epistemology of psychology, at least a two-way classification of kinds of information is required, and this may be found in putting the content and product categories together. In a cybernetic model of the human organism, the learner is defined as a complex information processing system.⁴⁷ Learning may then be defined as the acquiring of information in terms of discriminations in the form of any of the six products within any of the four content areas.

⁵⁵Aschner, loc. cit., 1962.

⁵⁶Nevitt Sanford, Where Colleges Fail (San Francisco: Jossey-Bass, Inc., 1967).

Several educational theorists use information theory in their construction of educational theory models. Their major focus has been upon successful teaching practice, and the transmission within the teacher education process of explicit and adequate educational theories they term "value open."⁴⁸

D. G. Ryans has studied the salient characteristics of over 6,000 teachers in some 1,700 schools over a six-year period.⁴⁹ Employing a systems-theoretical (information-systems theory) approach to instruction, this theorist viewed the teacher as an information processing system, and directed attention to the teacher as a decision-maker in his attempts to understand teacher behavior.⁵⁰

Bruner has directed his attention to the structure of a discipline as a key to its understanding, and is generally associated with intuitive thinking and the

⁴⁸Elizabeth S. Maccia, G. S. Maccia, and R. E. Jewett, Construction of Educational Theory Models, Cooperative Research Project No. 1632 (Columbus: The Ohio State University, Research Foundation, 1963).

⁴⁹David G. Ryans, "Some Relationships Between Pupil Behavior and Certain Teacher Characteristics," Journal of Educational Psychology, LII (1961), 82-91.

⁵⁰David G. Ryans, "Theory of Instruction with Special Reference to Teachers: An Information Systems Approach," Journal of Experimental Education, XXXII (Winter, 1963), 191-223.

"Discovery" method of learning and instruction.⁵¹

Interestingly, he feels that finding problems as opposed to solving problems, is the essential requirement for developing honest intellectual abilities in any given discipline.⁵² This theoretician also noted that both activation of some degree of uncertainty as well as its maintenance at some (desirable or optimum) level are required to motivate learners toward exploration of alternatives.

In recent years, social scientists have stressed heuristic (e.g., Guilford, above; Tyler, below) procedures in problem-solving. Heuristics aid in discovering solutions, can take the form of guidelines to action, and thus provide a basis for making decisions that will more likely be successful than the alternatives available.⁵³

A rather comprehensive heuristic is Tyler's rationale for curriculum and instruction, in which the teacher can produce alternative problem-solving strategies by tapping five sources of data: (1) the learner, (2) the community, (3) various principles of learning, (4) his own and the

⁵¹Jerome S. Bruner, The Process of Education (Cambridge: Harvard University Press, 1960).

⁵²Jerome S. Bruner, Toward a Theory of Instruction (Cambridge: Harvard University Press, 1966).

⁵³Harootunian, op. cit., pp. 6-7.

teaching staffs' values, and (5) the essential structure of the subject matter itself.⁵⁴

Teacher Effectiveness with Respect to
Problem-Solving and/or Decision-
Making, and Divergent Thinking

Historical Perspective of
Teacher Behavior and
Effectiveness

Barr, Popham and Baker, Ryans, and Silberman, have each collected and reviewed a considerable number of studies dealing with research on teacher behavior and effectiveness carried out since the turn of this century.⁵⁵ However, Harootunian suggested that relatively little was known about the bases on which teacher's make decisions in regard to building curriculums, selecting materials and methods of instruction, setting up groups for instruction, and in making many other decisions as they go about their daily work.⁵⁶

⁵⁴Tyler, op. cit.

⁵⁵A. S. Barr, ed., "Wisconsin Studies of the Measurement and Prediction of Teacher Effectiveness: A Summary of Investigations," Journal of Experimental Education, XXX (September, 1961), 5-156; W. James Popham and Eva L. Baker, "A Performance Test of Teaching Effectiveness," Paper read at the annual meeting of the American Educational Research Association, Chicago, February 1966; David G. Ryans, "Assessment of Teacher Behavior and Instruction," Review of Educational Research, XXXIII, No. 4 (October 1963), 415-441; and Harry F. Silberman, ed., "Symposium on Classroom Behavior of Teachers," Journal of Teaching Education, XIV, No. 3 (September 1963).

⁵⁶Harootunian, op. cit.

Travers analyzed 8,300 verbal statements collected from a sample of eighty-three teachers and commented that the average teacher's behavior patterns represent a tradition in teaching which is relatively stable and resistant to change.⁵⁷

Before reviewing several representative studies relating to teacher effectiveness, it may be best to heed the warning of two writers who stated:

No fallacy is more widely believed than the one which says it is possible to judge a teacher's skill by watching him teach. It is difficult to find anyone, professional educator or layman, who does not think he himself, at least, can recognize good teaching when he sees it.⁵⁸

Effective and/or Successful
Elementary Teacher Behavior
Attitudes

Significant differences in the attitudes of several groups of individuals in various educational fields were found both before and after a two-week workshop in guidance services. One finding of interest was the apparent fact that elementary teachers generally have a more favorable attitude toward children and were less subject

⁵⁷Robert M. W. Travers, "Models of Teacher Behavior in the Classroom," Proceedings of the 1960 Invitational Conference on Testing Problems (Princeton, New Jersey: Educational Testing Service, 1961), pp. 38-45.

⁵⁸Donald M. Medley and Harold E. Mitzel, "Measuring Classroom Behavior by Systematic Observation," in Handbook of Research on Teaching, ed. by N. L. Gage (Chicago: Rand McNally and Company, 1963), p. 257.

matter oriented than were secondary teachers when compared on the Minnesota Teacher Attitude Inventory.⁵⁹

Interests

One study employed supervisors' ratings to identify the most and the least successful of some ninety-eight male and female student teachers. Schultz and Ohlsen reported that the most successful group (N=50), exhibited high social service interest, and the least successful group (N=48), exhibited higher interests in working by themselves, in working with things, and in manipulating people for purposes of personal gain, as measured by the Strong Vocational Interest Blank.⁶⁰ Other researchers found that interest in intimate interpersonal activities was higher among teachers than among physicists, but was considerably lower for both of these groups when compared to engineers, physicians, salesmen, and theologians.⁶¹

⁵⁹J. Shaw, H. J. Klausmeier, A. H. Luker, and H. T. Reid, "Changes Occurring in Teacher-Pupil Attitudes During a Two-Week Workshop," Journal of Applied Psychology, XXXVI (1952), 305.

⁶⁰R. E. Schultz and M. M. Ohlsen, "Interest Patterns of Best and Poorest Student Teachers," Journal of Educational Sociology, XXIX (1955), 108-112.

⁶¹G. G. Stern, M. I. Stein, and B. S. Bloom, Methods in Personality Assessment (Glencoe, Illinois: Free Press, 1956).

Projective Behavior

Symonds and Dudek employed the Rorschach and found that capacity to relate to others was one of four factors which seemed to differentiate superior from inferior teachers.⁶² In a more recent investigation, centering on the personal qualities which appear to distinguish teachers selected to be "High" and "Low" with respect to over-all classroom behavior, D. G. Ryans concludes that effective elementary teachers prefer activities which involve contact with people, whereas, relatively ineffective elementary teachers ". . . indicate preferences for activities which do not involve close contacts with people."⁶³

General Characteristics

More recently, D. G. Ryans compiled and analyzed 100 separate research projects dealing with effective teacher behavior, and concludes that three essential characteristics seem to differentiate between "good" and "not so good" teachers: (1) they had attitudes favorable to students; (2) they enjoyed student relationships; and (3) they were more generous in their appraisal of the behavior and motives of other individuals.⁶⁴

⁶²P. M. Symonds and S. Dudek, "Use of the Rorschach in the Diagnosis of Teacher Effectiveness," Journal of Projective Techniques, XX (1956), 227-234.

⁶³David G. Ryans, "Some Correlates of Teacher Behavior," Educational and Psychological Measurement, XIX (1959), 9-11.

⁶⁴Ryans, loc. cit., 1961.

Problem-Solving Skills

Turner and Fattu suggested that "good teaching" involves not only the teacher's ability to define and resolve instructional problems, but also, involves the assumption that with the passing of time, the teacher improves in problem-solving skill.⁶⁵

Verbal Interaction

Hughes defined teaching as "interaction" of superior and subordinates, and her research centered on describing and analyzing good teaching behavior based on the reciprocal relationships and the patterns of interaction that occur between students and teachers.⁶⁶ Flanders noted that 60 per cent of classroom time was occupied in verbal interaction, and further, that 70 per cent of such verbal interaction was carried out by teachers.⁶⁷

Within the past decade a number of systems have been developed for classifying and analyzing verbal interaction,

⁶⁵Richard L. Turner and Nicholas A. Fattu, Problem Solving Proficiency Among Elementary Teachers I. The Development of Criteria, U. S. Department of Health, Education and Welfare, U. S. Office of Education, Cooperative Research Project No. 419 (Bloomington: Institute of Educational Research, Indiana University, 1960).

⁶⁶Marie Hughes, "Teaching is Interaction," Elementary School Journal, LVIII (1958), 457-464.

⁶⁷Ned A. Flanders, Teacher Influence, Pupil Attitudes, and Achievement, Cooperative Research Monograph, No. 12 (Washington, D. C.: U. S. Government Printing Office, 1965), p. 1.

and each provides a rather unique way of viewing classroom instructional talk.⁶⁸ For example, the work of several researchers, respectively, has been concerned with: (1) an analysis of the logic of teachers' linguistic behaviors, i.e., the forms, or logical operations, which verbal behavior takes as the classroom teacher shapes the subject matter in the course of instruction; (2) an analysis of classroom social-emotional climate, and developing and validating a system of interaction analysis for describing and assessing teacher influence, now widely used in categorizing verbal instructional behavior; (3) an analysis of the language, roles, and rules followed by teachers and students as they are engaged in the "game" of teaching; and (4) a multi-dimensional analysis of the classroom which incorporates both cognitive and affective factors.⁶⁹

In a study of the verbal behavior of superior elementary school teachers, it was found that teachers who were rated as superior by their supervisors, differ

⁶⁸Arno Bellack, ed., Theory and Research in Teaching (New York: Bureau of Publications, Teachers College, Columbia University, 1963).

⁶⁹B. Othanel Smith and R. H. Ennis, eds., Language and Concepts in Education (Chicago: Rand McNally and Company, 1961; Ned A. Flanders, "Teacher Influence in the Classroom," in Theory and Research in Teaching, ed. by Arno Belleck (New York: Bureau of Publications, Teachers College, Columbia University, 1963), pp. 1-10; Bellack, op. cit.; and Taba, Levine, and Elzey, op. cit.

significantly from other teachers in the same school districts with respect to the type of verbal behaviors that they used in their teaching.⁷⁰ Within the last five years, five similar studies found that pre-service teachers-in-training either used significantly different patterns of verbal behavior or were judged to be more effective by their student teaching supervisors, following training in the use of interaction analysis as a technique for analyzing and controlling their verbal behavior while student teaching, when compared to comparable groups of teachers not trained in the interaction analysis technique.⁷¹

⁷⁰Edmund Amidon and Michael Giammettee, "The Verbal Behavior of Superior Teachers," The Elementary School Journal, LXV (1965), 283-285.

⁷¹John Hough and Edmund Amidon, Behavioral Change in Preservice Teacher Preparation: An Experimental Study (Philadelphia: College of Education, Temple University, 1963); Jeffery Kirk, "Effects of Learning the Minnesota System of Interaction Analysis by Student Teachers of Intermediate Grades" (unpublished Doctoral dissertation, Temple University, 1964); Norma Furst, "The Effects of Training in Interaction on the Behavior of Student Teachers in Secondary Schools," Paper read at the annual meeting of the American Educational Research Association, Chicago, 1965; John Hough and Richard Ober, "The Effects of Training in Interaction Analysis on the Verbal Behavior of Preservice Teachers," Paper read at the annual meeting of the American Educational Research Association, Chicago, 1966; and Ernest Lehman, "A Study of the Effect of Pre-Service Training in Interaction Analysis on the Verbal Behavior of Student Teachers" (unpublished Doctoral dissertation, The Ohio State University, 1966).

Perceptions

In a volume cited earlier, the authors describe adequate persons as being, among other things, "accepting" of themselves and others, "informed," and describe adequate teachers as exhibiting more responsive acts such as, among other things, "offering alternatives."⁷²

Personality

In a paper presented at a recent social science curriculum conference in Indiana, Shaver reported on research dealing with two different styles of teaching:

We used two different teaching strategies to get the children to examine alternative positions. One was to have a student take a position and defend it personally in a one-to-one confrontation with the teacher; the other was a more diffuse dialogue, with a lower affective level. With the first style, the student was asked, "Do you think the police should have dragged the speaker off the podium?" "Why do you think that?" "What values support your position?" Using the second style, the teacher would ask questions such as, "What problems can you see with the action of the police?" "How do you think other people would react to this situation?" With this second style, no one student was forced to take a position and defend it. Issues were dealt with at what I call the societal, as opposed to the personal, level.

Our research on the use of the two methods showed the following: When we made an overall comparison of the two methods, there was no significant difference, as is so often the case in educational research. But when we categorized students on personality traits, we found that some types of student did better with the first style of teaching. These results are not only interesting in themselves; they also point to the

⁷²Combs et al., op. cit., p. 239.

possibility of much more fruitful educational research through greater use of designs that get at interaction effects.⁷³

Summary of Previous Research

The thirty references given with respect to problem-solving and/or decision-making in the first section of Chapter II, cover a time-span of some fifty years: from John Dewey's 1915 volume The School and Society, to several volumes which appeared in 1967. The largest number of references were to papers read at the annual meeting of the American Educational Research Association in Chicago during February, 1966.

It was suggested that education properly concerns the activities involved in problem-solving, and this means that students-in-training must be provided with ample opportunities to solve instructional problems.

Several references were provided to support the contentions that: (1) teaching practice has not been greatly influenced by educational theory; (2) educational practice and theory and/or research are not sufficiently combined in the pre-professional education of elementary teachers; and (3) elementary teachers are not implementing their educational beliefs in their classrooms.

⁷³James Shaver in Concepts and Structure in the New Social Science Curricula, ed. by Irving Morrisett (West Lafayette, Indiana: Social Science Education Consortium, 1966), p. 135.

A question was raised with respect to the need to integrate the results of educational research into the pre-professional training program of prospective teachers. The current study was designed to provide one answer to the question.

It was also suggested that the teacher is a hypothesis generator since he is usually making predictions, calculating risks and values, and evaluating the outcomes of his decisions. Several studies which relate to decision-making and reflective inquiry were given. It was argued that the teacher who has a range of alternative actions available to him will develop his capacity to be more flexible in his teaching behavior.

Problem-solving was defined as a kind of learning that requires thinking. Thinking was defined as a process in which two or more principles previously acquired are combined to produce a new capability in the learner. Research on computerized teaching of the skills and strategies thought necessary to autonomous thinking was discussed. Four studies were given that focus upon the problem of transfer of training with respect to problem-solving.

An on-going research project designed to test the efficacy of using four video-taped instructional sequences in bringing about behavior change in teachers was described. It was suggested that a new, vivid, realistic

model of effective teacher performance, presented in printed form via selected Focused Observations, could provide the realism thought to be both necessary and desirable in maximizing positive transfer of knowledge, and in producing new problem-solving and/or decision-making capabilities in prospective elementary teachers.

In the second section of Chapter II, twenty-four references were given with respect to divergent thinking and to a model of the intellect. The history of the theory of intellectual abilities, which led to the development of the "Structure-of-Intellect" model, was broadly sketched. An extensive discussion was presented with respect to the four types of contents, five types of operations, and six types of products, which combine to yield 120 factors of intellect in the model. It was argued that the least adequate knowledge is available about the operations and products to be tested in measuring abilities in the behavioral domain.

The unique features of divergent thinking were then explored and this concept was related to creativity. Divergent thinking was defined as the production of a variety of alternative solutions to a problem-solving situation. Recent research was presented on the transactions of instruction with respect to the thought operations reflected and products represented in discussion behavior. It was noted that the current study

makes use of the behavioral contents, divergent pro-
duction operations, and implications products cell
located with the "Structure-of-Intellect" model.

The cybernetic model of the human organism (learner, and teacher) discussed earlier, was related to Guilford's "Structure-of-Intellect" model. The learner was defined as a complex information processing system. Learning was then defined in terms of discriminations in the form of six products within any of the four content areas within the model.

The work of several educational theorists who use a systems-theoretical approach in building educational theory models was discussed. An alternative approach was presented in which the theoretician feels that finding problems, as opposed to solving problems, is required for developing honest intellectual abilities. This section was brought to a close with the presentation of a comprehensive heuristic in which the teacher produces alternative problem-solving strategies for instructional decision-making by tapping various sources of data.

In the third section of Chapter II, nineteen references related to teacher effectiveness were given and related to problem-solving, decision-making, and divergent thinking. It was noted that the average teacher's behavior patterns represent a tradition in teaching which is relatively stable and difficult to change.

Several studies were given which, when summarized, would seem to indicate that superior elementary teachers would differ from other teachers with respect to their attitudes toward children, subject-matter orientation, social service interests, and preference for activities which involve interpersonal contact.

An analysis of a compilation of 100 separate research projects dealing with effective teacher behavior would indicate that three essential characteristics differentiate between "good" and "not so good" teachers as follows: (1) they hold attitudes favorable to students; (2) they enjoy student relationships; and (3) they are more generous in their appraisal of the behavior and motives of other individuals.

It was suggested that effective teaching involves the teacher's ability to define and resolve instructional problems. This suggestion involves the assumption that the teacher improves in his problem-solving skill as he gains experience. Several studies were given, each of which provides a somewhat unique system for viewing, classifying, and analyzing classroom verbal interaction. The current study, which makes use of a four-category system of classifying alternative actions to problem-solving situations, draws upon the findings reported in these studies.

Several studies were given in support of the hypothesis that more effective teachers at all levels use different patterns of verbal behavior in comparison to less effective teachers. In summary, it was suggested that more effective teachers are more adequate persons who are "accepting," and "informed," and also exhibit more responsive acts such as "offering alternatives." The current study was designed to provide teachers-in-training with opportunities for practice in generating alternatives and making decisions with respect to classroom problem-solving situations.

The review of literature was concluded with the presentation of a research study which dealt with two different methods or styles of issue-centered teaching. As is so often the case in educational research, no significant difference was found when comparing the effects of the "societal method" to the effects of the "personal method" of teaching. However, when students were categorized on the basis of their personality traits, it was reported that some types of students did better with the first style of teaching. Interestingly, the current study was designed to ascertain the educational effects of instructional procedures differentiated in terms of selected psychological characteristics of prospective elementary teachers.

CHAPTER III

THE DESIGN, STATISTICS, THE LEARNING SYSTEMS INSTITUTE'S MOTT STUDY: "TEACHING IN THE INNER CITY," CRITERION INSTRUMENTS, AND INSTRUMENTS USED TO TAP THE FOUR RESPONSE SYSTEMS

The Design and Statistics Used in the Study

The Design

The study was designed to investigate the effects of two instructional procedures upon four groups of prospective elementary teachers. Particular attention was given to the impacts of the two instructional procedures upon selected psychological characteristics of the students. The students were enrolled in a pre-student-teaching educational psychology course, Individual and the School, at Michigan State University, during the Spring Quarter, 1967.

The two instructional procedures were defined earlier as two methods of instructional use of descriptive materials selected from a behavioral model of the elementary school teacher. The public school teacher

behavioral model, consisted of 241 verbal descriptions available in the Learning Systems Institute's descriptive study of elementary teaching in the inner city.¹ More specifically, the instructional procedures consisted of two different methods of instructional use of selected Focused Observations drawn from the Mott Study: "Teaching in the Inner City," as presented in Appendix A. A description of the Mott Study model and its development will be presented later in this chapter.

Since the current study was a short-term descriptive investigation, no experimental hypotheses were proposed. As a descriptive, case-study type of investigation, this study may provide the data base necessary for the generation of possible predictive hypotheses in future research.

The study was specifically designed: (1) to describe, via daily diaries, two methods of instructional use of Focused Observations selected from the behavioral model of the elementary school teacher; (2) to investigate the effects of the instructional procedures on students' capacities to solve instructional problems; and (3) to ascertain the correlation between students' responses on several psychological scales and their responses on four criterion instruments.

¹Ted W. Ward and Judith E. Henderson, Teaching In the Inner City (East Lansing: Michigan State University, The Learning Systems Institute, 1966).

A description of the general population of prospective teachers at Michigan State University, the sample of prospective elementary teachers, the Individual and the School course, and the grouping and data collection procedures employed in the study, will be provided in Chapter IV.

All students in the sample completed a Personal Data Sheet early in the Spring Quarter, and also completed the four Focused Observations used on the post-test as criterion instruments (see below). College Qualification Tests scores and Grade Point Averages were also analyzed for all students for whom scores were available in the Office of Evaluation Services and in the Office of the Registrar at Michigan State University (see Chapter IV).

The assignment of students to Groups A, B, and C, was under the researcher's control, and carried out on a random basis subject to the limitations described in the section dealing with the sample found in Chapter IV. As noted earlier, Groups A (A1 and immediate replication A2) under instructor A, received instructional treatment A; Groups B (B1 and immediate replication B2) under instructor B, received instructional treatment B; Group C under instructor C, received no treatment, i.e., no experience with the specific instructional treatments A and B.

Instructional treatment A consisted primarily of small-group interaction in five six-member small-groups. Each small-group was composed of two students who had scored "High," two who had scored "Middle," and two had scored "Low" on their pretest need for Intrasection. Treatment A featured student-led discussions, an instructor who assumed a non-directive and/or accepting role as moderator in large-group discussions, and emphasized classroom management techniques and academic content to be learned with respect to the solution of the content problems presented in the Focused Observation worksheets (see Appendix B).

Instructional treatment B consisted primarily of a variety of small- and large-groups formed on a highly flexible basis at the beginning of and during the thirteen treatment sessions. Treatment B featured instructor-led discussions, an instructor who assumed a rather directive role in the discussions, and emphasized the psychological needs of each learner and classroom social atmosphere with respect to solution of the content problems presented in the Focused Observation worksheets (see Appendix B).

Group C received no experience in problem-solving or decision-making using the Focused Observations selected from the Mott Study behavioral model. The Group C instructor had sixteen years of teaching and administrative

experience at the elementary school level, and emphasized large-group discussions of the lectures, book of readings, and text provided in the course.

In summary, Groups A (A1 and replication A2) received treatment A, and were under the researcher's direction; Groups B (B1 and replication B2) received treatment B, and were under the direction of another experienced instructor; Group C received no treatment, and was under the direction of an experienced elementary instructor. This procedure provided for an immediate replication of instructional treatments A and B within the design of the study. Groups A and B were provided with experience in problem-solving and/or decision-making on thirteen treatment sessions with respect to forty Focused Observations selected from the 241 Focused Observations available in the complete Mott Study model (see Appendix A and Appendix B). Group C was considered to be a control group in relation to the criterion instruments presented in Figure 3.3 and Figure 3.4 in Chapter III.

At the end of the thirteen treatment sessions, each of the five groups completed the criterion instruments designated as: (1) Focused Observations numbered 53 and 214, with no alternatives listed; and (2) Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher (see Appendix C). A comparison of responses of the five groups with respect to these

criterion instruments was made to investigate the effects of the instructional procedures on students' capacities to solve instructional problems with respect to each of the following: (1) divergent thinking; (2) flexible endorsement; and (3) ease/difficulty of producing and endorsing alternative actions.

During the first and the last class sessions of the respective discussion sections in the course, Groups A and Groups B completed the instruments designated as (1) Focused Observations numbered 53 and 214, with no alternatives listed; and (2) several scales used to measure selected psychological characteristics representative of the response systems available to each student, as discussed earlier in the study (see Appendix D). A comparison of the responses of the four treatment groups with respect to these instruments was made to investigate the effects of the instructional procedures on each of the following behavioral elements: (1) divergent thinking; (2) flexible endorsement; (3) ease/difficulty of producing and endorsing alternatives. The responses of the four treatment groups on these criterion instruments (post-test score minus the influence of the pretest score), were then correlated with their responses on the several psychological scales.

From a research design point of view, Gage's "design 6," the "Post-test-Only Control Group Design," was the model represented in the use of the four criterion

instruments completed by each of the five groups on the post-test.² From a research design point of view, a variant of Gage's "design 4," the "Pretest-Post-test Control Group Design," was the model represented in the use of the two criterion instruments completed by each of the four treatment groups on both the pretest and post-test.³

Statistics Used in the Study

Complete data were obtained on all 147 subjects who completed the requirements in the course. However, these subjects were unevenly distributed within the several groups as follows: thirty were located in Group A1; thirty-one in Group A2; thirty-one in Group B1; twenty-seven in Group B2; and twenty-eight in Group C, respectively. In order to equalize the number of subjects located in each of the five groups, thereby simplifying the statistical programs and calculations, a table of random numbers was consulted.⁴ The use of the table of random numbers (Walker and Lev Table XXIII Random Numbers, Column 1, Line 47; Column 5, Line 5; Column 6, Line 22; Column 14, Line 30), resulted in twelve subjects being eliminated from statistical consideration in the study, as presented in Table 3.1 below.

²N. L. Gage, ed., Handbook of Research on Teaching (Chicago: Rand McNally and Co., 1963), pp. 178, 195-204.

³Ibid., pp. 178, 192-194.

⁴Helen M. Walker and Joseph Lev, Statistical Inference (New York: Holt, Rinehart and Winston, 1953), pp. 484-485.

TABLE 3.1--Groups and identifying numbers of subjects for whom data were eliminated from statistical analyses.

Group	Identifying Number of Subjects			
A1	6	--	21	25
A2	6	18	21	25
B1	6	18	21	25
B2	--	--	--	--
C	6	--	--	--

NOTE: This procedure resulted in five groups of twenty-seven subjects each, and data on a total N of 135 available for statistical analyses.

The chi-square test of independence was used to determine, at the .05 level of confidence, whether or not any systematic biases exist among the five groups of students with respect to selected demographic factors.⁵

An analysis of variance and the F statistic was used to determine, at the .05 level of confidence, whether or not any systematic biases exist among the five groups of students with respect to either their entry to college scores on the College Qualification Tests or their grade-point averages earned to date at Michigan State University.⁶

An analysis of variance and the F statistic was also used to determine, at the .05 level of confidence, whether or not any systematic biases exist among the four treatment groups with respect to their responses on

⁵Ibid., pp. 81-108.

⁶Ibid., pp. 196-229.

(1) Focused Observations numbered 53 and 214, presenting only the problem-solving situation; and (2) several scales used to measure selected psychological characteristics of students.⁷

An analysis of variance and the F statistic was used to determine, at the .05 level of confidence, the significance of the difference among means of the five groups with respect to their scores on the Midterm Examination and Final Examination.⁸

Simple product-moment correlation coefficients were calculated with respect to the four treatment groups' responses on (1) the several personality scales used on both the pretest and post-test; and (2) fourteen criterion variables measured on the post-test via Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher.⁹

Partial correlation coefficients were calculated with respect to the four treatment groups' responses on Focused Observations numbered 53 and 214, with no alternatives listed (post-test scores with the influence of the pretest score partialled out), and their post-test responses on the several personality scales.¹⁰

⁷Ibid., pp. 348-386. ⁸Walker and Lev., loc. cit.

⁹J. P. Guilford, Fundamental Statistics in Psychology and Education (New York: McGraw-Hill, 1965), pp. 91-112.

¹⁰Ibid., pp. 339-341.

Rank-order correlation coefficients were calculated with respect to pretest and post-test differences for all individuals responding to the criterion instruments based on Focused Observations numbered 53 and 214, with no alternatives listed, and each person's scores on the several personality scales.¹¹ The rank orders for individuals in Groups A and in Groups B were treated separately.

The Learning Systems Institute's Mott Study:
"Teaching in the Inner City"

The Learning Systems Institute's Mott Study: "Teaching In the Inner City," provides a basis for answering the practical question: Is there or isn't there a difference between competent and non-competent teaching in the elementary schools of the inner city? The Mott Study had two major objectives: (1) to describe the teaching behaviors of practicing elementary teachers who have demonstrated particular aptitude in teaching the culturally deprived child; and (2) to identify teaching behaviors "peculiar" to competent elementary teaching in the selected inner city schools in contrast with competent elementary teaching in a set of non-inner city environments.¹²

¹¹Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill, 1956), pp. 202-213.

¹²Ward and Henderson, op. cit.

Development of the "Mott Study"

Descriptions of teaching behaviors occurring in inner city schools located in Detroit, Flint, and Grand Rapids, Michigan, were obtained by use of a specially adapted form of the "Focused Observation." The Focused Observation is an instrument for observing, recording, and describing small units of teaching behavior.¹³ The Focused Observation technique requires that an observer be present in a classroom, and while observing, make a written description of the observable elements of a brief span of teacher behavior. The observer is free to document any short span of the teacher's classroom activity and required to only describe what he observed without subjective qualification or categorization.

The observer's responses were structured so that data was recorded on three aspects of a selected teaching moment: (1) the situation, involving a brief description of the relevant elements present in the immediate environment; (2) the action, describing a specific teacher behavior within or resulting immediately from the situation; and (3) the consequence, involving a brief description of the perceptible consequences that followed immediately

¹³Judith Henderson, "The Focused Observation of Teaching Behaviors," Papers of the Institute No. 24 (East Lansing: Michigan State University, The Learning Systems Institute, 1966).

and seem related to the teacher behavior and its impact upon the situation (see Appendix E).

Following training in the Focused Observation technique, each of fourteen observers made approximately two observations per hour of the representative acts of each of two teachers, and each teacher was observed for two full days. The fourteen teachers involved in the study were drawn from a list of competent elementary teachers provided by administrative and supervisory personnel in the three Michigan cities cited above.

At the close of each school day, the observer and the teacher held a conference so that a tape recording could be made of the teacher's responses to the following questions:

1. "Why did you take the particular action I have described?"
2. "What else should I know about the situation and the children in order to get a better picture of what was going on?"
3. "Would you describe for me exactly what happened as a result of your action?"
4. "Does the entire situation, as we have discussed it, illustrate something specific that you believe about teaching?"

A reliability check on the observer was provided by teacher responses to the second and third questions.

Answers to all four questions provided the taped data required for writing descriptive protocols of competent elementary teaching in inner city schools. Subsequently, transcriptions of the tapes were prepared as well as 277 descriptions of inner city teaching behaviors. In comparing teacher reports with observer descriptions, no instances of disagreement or inconsistency were found.

Independent judgments were then made regarding the frequency and appropriateness of the behaviors by each of the two selected panels of "competent" elementary teachers. One panel, called Referent Group A, consisted of the same fourteen teachers who had been selected as being competent by local definition. Referent Group A was then empaneled to screen and make judgments concerning the 277 descriptions of teaching in the inner city. Consensus (defined as agreement of twelve or more panel members), produced Model A, which consisted of 230 descriptions of teaching behavior judged as representative and appropriate in the inner city.

The second panel, called Referent Group B, was composed of fourteen intern consultants drawn from schools located in non-inner city environments. The intern consultants were master teachers who served essentially as models of desirable teacher behavior. These master teachers had been selected, recommended, and supported by the local school system to assist and guide interning

teachers in that school system. Group consensus (defined as agreement of twelve or more panel members), produced Model B, which consisted of 189 descriptions of teaching behavior judged as representative and appropriate in the non-inner city.

Comparison of Model A (230 descriptions) and Model B (189 descriptions) indicated that 52 behaviors were found only in Model A, 11 behaviors were unique to Model B, and 178 behaviors were common to both Model A and B.

Classification of Teacher Behaviors

Since systematic classification of the teacher behavior characteristics was still lacking, a scheme for assigning characteristics to the teaching acts was devised (see Appendix F). This scheme was based upon the pioneering work of Bellack, Hughes, Taba, and others cited earlier in Chapter II of this study.

Each of eight classifiers responded to different sample sets of twenty behavioral descriptions, and each answered a series of four to eight questions for a given description. When three out of four classifiers reached classification agreement on each of twenty randomly selected descriptions, the questions used for classification were judged as satisfactory. Then two members of the Learning Systems Institute research staff answered the classifying questions for each of the 241 "accepted"

teacher behaviors. Conflict of opinion occurred on only two classification problems and a third research staff member resolved these conflicts.

These classification activities resulted in the 241 behavioral descriptions being distributed according to four types of teacher functions: Academic, Psychological, Managerial, and Social. The four types of teacher functions, as represented in the 241 descriptions, exhibited a predominance of academic behaviors (86), fewer psychological (69) and managerial (58) behaviors, and a minimum of social (28) behaviors.

One significant outcome of these efforts was a set of descriptive materials that provide sound instructional data about "model" elementary teaching behaviors in inner city schools. In this study, this set of 241 descriptive materials is referred to as the Mott Study: "Teaching In the Inner City," and each of the selected descriptions is referred to as a Focused Observation.

Selection of the Focused Observations Used in the Study

During the Winter Quarter, 1966-1967, the two instructors in charge of the four treatment groups in the study, read the Mott Study as well as other descriptive materials published by the Learning Systems Institute at

Michigan State University.^{14,15,16,17,18,19} In order to meet the criterion of representativeness, these instructors selected one Focused Observation from each of the classification categories of teacher behavior noted earlier (see Appendix F). Since five of these categories were not represented by an exemplar in the inner city teaching model, these same instructors selected a second Focused Observation from three categories that were represented by the greatest number of behavioral descriptions: categories numbered 3.1 by seventeen, 6.2

¹⁴Frank Cookingham, "A Promising Bridge for the Educational Research-to-Practice Gap," Papers of the Institute No. 20 (East Lansing: Michigan State University, The Learning Systems Institute, April, 1966a).

¹⁵Frank Cookingham, "Action Research Models of Practitioner Change," Papers of the Institute No. 19 (East Lansing: Michigan State University, The Learning Institute, April 1966b).

¹⁶Henderson, op. cit.

¹⁷Ted W. Ward, "Establishing An Effective System for Communication About School Development," Papers of the Institute No. 18 (East Lansing: Michigan State University, The Learning Systems Institute, October 1965).

¹⁸Ted W. Ward, "The Outlook for Teacher Education," Papers of the Institute No. 22 (East Lansing: Michigan State University, The Learning Systems Institute, March 1966).

¹⁹Ted W. Ward and Frank Cookingham, "Research to Improve Teaching," Michigan Educational Research Council Newsletter, I, No. 1 (July, 1966).

by seventeen, and 8.22 by twenty-one descriptions, respectively (see Table 3.2 below).

In addition, the choice of Focused Observation in each category was also determined by the criterion of appropriateness: (1) the grade level to which the behavioral description was addressed; and (2) its intrinsic appeal as a teaching situation easily visualized and understood in terms of the experience of both instructors. These criteria and selection procedures resulted in the selection of forty-five Focused Observations that were used in the study (see Appendix A). The category or classification number, the number and title of each selected description, and the number of Focused Observations in each category are presented in Table 3.2 below.

Selection of Focused
Observations Used as
Criterion Instru-
ments in the Study

During the Winter Quarter, 1966-1967, the two instructors noted earlier, carried out a preliminary study within several discussion sections of the Individual and the School course (see Chapter IV for a description of the course), using the content problems drawn from several Focused Observations.

TABLE 3.2.--Classification number, description number and title, and the number of Focused Observations in each category.

Category Number	Description		Number of Focused Observations in the Category
	Number	Title	
1.1	120	Planning for All Learners	3
1.2	70	Planning with the Learner for Art Activities	1
1.3	141	Providing a Rest and Relaxation Break	1
1.31	210	Modifying Plans to Meet Unusual Situations	5
1.32	155	Providing for Group Participation	1
1.33	51	Developing Self-reliance	9
1.34	107	Shifting Activities to Motivate the Learner	10
1.4	146	Awareness of Classroom Atmosphere	2
2.1	74	Sharing Materials	2
2.2			
3.1	53	Maintaining an Atmosphere of Learning	17
3.1	199	Motivating by Rewarding	17
3.2	76	Stimulating Pupil Response	4
4.1			
4.11	81	Emphasizing the Need to Follow Through	1
4.12	145	Handling Interruptions	2
4.2			
4.21	67	Supervising Independent Activity	1
4.22	21	Helping Students with a Common Problem	3
5.1	28	Increasing Conceptual Understanding	15
5.2	13	Giving Cues for Word-attack Skills	12
5.3	133	Providing Opportunity for Critical Thinking	2
5.4	223	Providing Opportunities for Creativity	2
5.5	115	Providing Needed Review	6
6.1	41	Building Self-Confidence	6
6.11	127	Building Confidence	2
6.2	167	Helping a Child in Trouble	16
6.2	177	Minimizing Embarrassment	16
6.3	104	Relieving Tension	7
6.4	25	Clarifying Pupil Misconceptions	4
7.1	12	Individualizing Instruction	4
7.2	71	Letting One Child Help Another	6
7.3			
7.4	68	Handling Reluctant Learners	2
8.1	99	Helping Children Develop Character	1
8.11	116	Maintaining Classroom Control	5
8.12	125	Providing Positive Recognition	3
8.2	180	Handling Problem Children	2
8.21	136	Homework Assignments	6
8.22	22	Quieting the Disruptive Child	21
8.22	61	Discipline During a Test	21
9.1	192	Oral Evaluation	1
9.2			
9.3	72	Evaluating New Teaching Methods	2
9.4	36	Sensing How Children Feel	4
10.1	94	Subordinating Rules for Pupil Well-being	3
10.2	96	Distributing Needed Materials	6
10.3	11	Taking Advantage of Immediate Situations	1
10.4	18	Orderly Pupil Movement in the Classroom	10
10.5	97	Helping Pupils Learn to Concentrate	5

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The students involved in this preliminary study were asked to suggest alternative actions to the problem-solving situations presented in the several Focused Observations, to endorse these alternatives on a four-part scale of flexibility, and to rate the ease/difficulty they encountered in both suggesting and endorsing the alternative actions on a six-part scale of difficulty.

On the basis of the written and verbal feedback from the students, the two instructors chose the content problem found in Focused Observations numbered 53 and 214 as the most appropriate and representative for use as criterion instruments. These Focused Observations were then used on both the pretest and post-test in the study, and are depicted in Figure 3.1 and Figure 3.2 respectively.

A companion set of criterion instruments were designed on the basis of the alternative actions suggested to Focused Observations numbered 53 and 214 by the students involved in the preliminary study cited above. Several steps were involved in this process as follows:

1. Classification of suggested alternative actions to each Focused Observation into many and then fewer categories which contained similar statements,
2. Judging the statements according to four teacher functions: Academic, Psychological, Managerial, and Social functions,

NAME: _____

SITUATION: #53--3.1 A teacher is introducing a new unit on Africa to her class by showing colored pictures of the country and discussing the pictures with the students. As she talks one of the pictures falls to the floor with a great crash. What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

2. Rate the alternatives you would most likely take using the scale below:

A Strongly Agree--Always Use

B Agree--More Often Than Not Use--Most of the Time

C Disagree--Occasionally Use--Some of the Time

D Strongly disagree--Never Use

3. How difficult was it for you to rate the alternatives above:

EASY _____ DIFFICULT

Very Easy Rather Easy Easy Difficult Rather Difficult Very Difficult

4. Give reasons for your highest choice of alternative: (on other side).

Figure 3.1--Criterion Instrument 53, With No Alternatives Listed.

NAME: _____

SITUATION: #214--9.3 It is approaching time for noon dismissal. The children are industriously working arithmetic problems at their desks. There is not enough time for all of them to complete the entire assignment, so some will have to take their problems home or finish them during the study period tomorrow. What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

____ 1. _____

____ 2. _____

____ 3. _____

____ 4. _____

____ 5. _____

____ 6. _____

____ 7. _____

____ 8. _____

____ 9. _____

____ 10. _____

____ 11. _____

____ 12. _____

2. Rate the alternatives you would most likely take using the scale below:

A Strongly Agree--Always Use

B Agree--More Often Than Not Use--Most of the Time

C Disagree--Occasionally Use--Some of the Time

D Strongly Disagree--Never Use

3. How difficult was it for you to rate the alternatives above:

EASY _____ DIFFICULT

Very Rather Easy Difficult Rather Very

Easy Easy Difficult Difficult

4. Give reasons for your highest choice of alternative: (on other side)

Figure 3.2--Criterion Instrument 214, With No Alternatives Listed.

3. Combining the Academic and Managerial, and the Psychological and Social categories,
4. Classification of the alternative actions on a four-part scale of flexible endorsement,
5. Rank ordering of the alternatives from high to low flexible endorsement in both the Academic and Managerial, and Psychological and Social categories,
6. Pairing of alternatives in each category relative to this ranking, and
7. Presenting the paired alternatives on the appropriate Focused Observation in 5, 3, 1, 6, 4, 2 (rank order) sequence, with the Academic or Managerial first, and the Psychological or Social second, in each case.

The students (N=28), suggested some 165 alternative actions to the problem-solving situation presented in Focused Observation number 53. These 165 actions were then classified into thirty-one broad categories, and later combined into fourteen categories. The students (N=26), suggested some 124 alternative actions to the situation presented in Focused Observation number 214; these actions were classified into eighteen broad categories, and later combined into thirteen categories containing similar alternative actions.

The categories next were judged and labeled according to four content or teacher functions: Academic,

Psychological, Managerial, and Social. Then the Academic and Managerial, and the Psychological and Social categories were combined. The alternative actions were next classified relative to their placement on the four-part scale of flexible endorsement. The alternatives were then rank ordered from high to low on flexible endorsement in both the Academic and Managerial, and the Psychological and Social categories. Then the alternatives were paired relative to this ranking, and finally, presented on the appropriate Focused Observation in the numerical sequence as follows: 5, 3, 1, 6, 4, 2. In each instance, the Academic or Managerial alternative was presented first, and the Psychological or Social alternative was presented second.

These criterion instruments, with the twelve alternative actions listed, were used as part of the post-test in the study, and are depicted in Figure 3.3 and Figure 3.4, respectively.

Rationale for Use of the Mott Study

Current behavioral research may aid in bridging the apparent gap, between what we say or teach in theory and what we actually do in practice, because it acknowledges the proposition that what experience has taught teachers is worth knowing. Instructional behaviors can be traced to their roots in the teacher's thinking in

NAME: _____

SITUATION: #53--3.1 A teacher is introducing a new unit on Africa to her class by showing colored pictures of the country and discussing the pictures with the students. As she talks one of the pictures falls to the floor with a great crash. What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

- _____ 1. The teacher should pick up the picture.
- _____ 2. Smile, make a remark, or apologize for the noise.
- _____ 3. Ignore it; don't let it distract you; pick it up later.
- _____ 4. Involve a student(s) in picking it up.
- _____ 5. Demand that a student(s) help pick up the picture.
- _____ 6. Get mad; use verbal abuse; feel flustered or embarrassed.
- _____ 7. Relate the crash to Africa's sounds or to the picture's content.
- _____ 8. Use the situation to teach students about orderliness.
- _____ 9. Continue the lesson without the picture.
- _____ 10. Laugh, tell a joke, or make a humorous comment.
- _____ 11. Stop the lesson; dismiss for recess, or go to another subject.
- _____ 12. Make a sarcastic, caustic or "smart" remark.

2. Rate the alternatives you would most likely take using the scale below:

- A Strongly Agree--Always Use
B Agree--More Often Than Not Use--Most of the Time
C Disagree--Occasionally Use--Some of the Time
D Strongly Disagree--Never Use

3. How difficult was it for you to rate the alternatives above:

EASY							DIFFICULT
	Very	Rather	Easy	Difficult	Rather	Very	
	Easy	Easy			Difficult	Difficult	

4. Give reasons for your highest choice of alternative: (on other side).

Figure 3.3--Criterion Instrument 53, With Twelve Alternatives Listed.

NAME: _____

SITUATION: #214--9.3 It is approaching time for noon dismissal. The children are industriously working arithmetic problems at their desks. There is not enough time for all of them to complete the entire assignment, so some will have to take their problems home or finish them during the study period tomorrow. What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

- _____ 1. Finish work after lunch during study or free period.
- _____ 2. Finish at home, thereby teaching self-discipline.
- _____ 3. Collect now and evaluate only the completed work.
- _____ 4. Give students the choice: finish now, or do at home.
- _____ 5. Finish work now, i.e., work through the lunch period.
- _____ 6. The assignment is too difficult; toss it out.
- _____ 7. Have students come in after school to finish work.
- _____ 8. Be aware of differences in time needed: finish at home.
- _____ 9. Finish tomorrow, i.e., allow more time in class.
- _____ 10. Be aware of different learning rates; collect work done.
- _____ 11. Select some problems to hand-in now; forget the rest.
- _____ 12. Finish now; parents and others may do if taken home.

2. Rate the alternatives you would most likely take using the scale below:

A Strongly Agree--Always Use

B Agree--More Often Than Not Use--Most of the Time

C Disagree--Occasionally Use--Some of the Time

D Strongly Disagree--Never Use

3. How difficult was it for you to rate the alternatives above:

EASY _____ DIFFICULT

Very Rather Easy Difficult Rather Very
 Easy Easy Difficult Difficult

4. Give reasons for your highest choice of alternative: (on other side).

Figure 3.4--Criterion Instrument 214, With Twelve Alternatives Listed.

order to determine what hypotheses the teacher is operating from in his classroom. The Learning Systems Institute at Michigan State University has reduced teacher behavior to its simplest element: instructional decision-making. Examples of this element are represented in the 241 Focused Observations which comprise the Mott Study.

In the current study, the prospective elementary teacher is defined as a hypothesis generator and tester, using a decision-making model. This decision-making process consists of three behavior components: (a) an input sequence, in which information is assimilated, interpreted, and organized into a program for action; (b) an operation sequence, that is directly observable in behavior, and in which the plan is activated; (c) a test sequence, in which feedback is received, evaluated, and used as new input to revise plans where necessary. This cybernetic model of teacher behavior is the core formulation in the lectures, the book of readings and the text provided in the Individual and the School course.

Decision-making in the live classroom may be described as a process in which the prospective elementary teacher seeks cues from the dynamics of an actual classroom situation (described in each Focused Observation), combines these cues with the objectives he has for the

learners (using his own hypotheses regarding learning), states an action he could take, evaluates the probable consequences of his action and the hypothesis on which he acted, in order to make a better prediction or to take a more flexible alternative action when he faces an analogous situation at a latter time.

The Learning Systems Institute's Mott Study contains 241 valuable verbal descriptions of what Michigan State University's highly competent supervising teachers and intern consultants offer to prospective elementary teachers as behavior models. The supervising teacher in the student-teaching experience is a most influential behavior model. The 241 Focused Observations provide a clear, precise, and real picture of what these behavior models actually look like.

Michigan State University's pre-student-teaching course, Individual and the School, could provide some of the problem-solving and/or decision-making experiences which communicate these behavior models earlier and more rapidly to the prospective elementary teacher. This course could become a body of meaningful problem-solving and/or decision-making experiences which enable the prospective elementary teacher to begin to perceive and operate within a framework of a given elementary teaching behavior model.

Descriptive Data on Instruments Used to
Tap the Four Response Systems

Instruments Used to Tap
the Motivational System

Intracception Scale

The Intracception scale is a twenty-eight item scale drawn from the 225-item Edwards Personal Preference Schedule (EPPS), published by A. L. Edwards in 1954.²⁰ The EPPS, even though not a clinical instrument, provides convenient and relatively easy to obtain measures of a number of relatively independent normal personality variables. The variables are generally accepted by psychologists as being fairly non-evaluative in connotation.

The statements composing the EPPS, and those that purport to measure the Intracception variable in particular, originated in the list of manifest needs presented in Murray's classic volume, Explorations in Personality.²¹

Each of the fifteen personality variables in the EPPS is paired twice with a statement representing each of the other needs. The two statements comprising each forced-choice item in the EPPS are essentially comparable with respect to their social desirability scale values.

²⁰Allen L. Edwards, Edwards Personal Preference Schedule (New York: The Psychological Corporation, 1954).

²¹Henry A. Murray, Explorations in Personality (Oxford, England: Oxford University Press, 1938).

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The maximum score that can be obtained for any specific need, such as Intraception, is twenty-eight, and the minimum score is zero. The higher the score on a specific need, such as Intraception, the more often the subject has chosen the statements representing this need as being descriptive of himself in preference to the statements representing the other fourteen needs.

The manifest needs associated with the need for Intraception are as follows:

To analyze one's motives and feelings, to observe others, to understand how others feel about problems, to put one's self in another's place, to judge people by why they do things rather than by what they do, to analyze the behavior of others, to analyze the motives of others, to predict how others will act.²²

As reported in the Manual to the EPPS, the Intraception scale has a split-half, or internal consistency, reliability coefficient of .79, and a stability coefficient, test and retest with a one-week interval, of .86, with a mean of 17.00, and a standard deviation of 5.60 (a mean of 17.32, and a standard deviation of 4.70 with respect to college women).²³

The Intraception scale intercorrelated with the other fourteen scales on the EPPS from a high of -.22

²²Allen L. Edwards, Edwards Personal Preference Schedule Manual (New York: The Psychological Corporation, 1959), p. 11.

²³Ibid.

with Exhibition, to a low of .01 with both Affiliation and Abasement. In general, the rather low values of these intercorrelations indicate that the variables measured by the EPPS are relatively independent.

The validity of personality inventories is quite frequently defined as the extent to which the scale actually measures what it purports to measure. Since "pure criterion measures" are generally not available for personality inventories, correlations with other instruments provide a degree of confidence for the investigator in his understanding of the nature of the variables supposedly measured by the inventory. The coefficient of correlation between the Intracception scale and the Taylor Manifest Anxiety Scale is $-.06$, and is $.06$, $.13$, and $.12$ respectively, to the Cooperativeness, Agreeableness, and Objectivity scales as found on the Guilford-Martin Personality Inventory.^{24,25}

Counselors have found the EPPS to be a particularly useful springboard in stimulating group discussions about the degree and kind of interpersonal relationships most desired by individuals in social interaction. Research

²⁴Janet A. Taylor, "A Personality Scale of Manifest Anxiety," Journal of Abnormal and Social Psychology, XLVIII (1953), 285-290.

²⁵J. P. Guilford, The Guilford-Martin Personality Inventory Manual of Directions and Norms (Beverly Hills, California: Sheridan Supply Co., undated).

employing the EPPS has been found to be related to the degree of responsibility, or the lack thereof, desired in employer-employee relationships.

Used as a research instrument, it may be of interest to researchers to determine whether certain of the personality variables measured by the EPPS, and the Intraception scale in particular, will differentiate between successful and unsuccessful prospective elementary teachers, as well as, those who aspire toward any field of endeavor.

With regard to the validity of the Intraception scale, the researcher was forced to rely on the argument of general face-validity for the Intraception scale.

With regard to the use of the Intraception scale within this study, students in Groups A (A1 and replication A2), and in Groups B (B1 and replication B2), were pretested on this scale. Also, each small-group located in Groups A (A1 and replication A2), were composed of two students who had scored in the "High" one-third (raw score of 17 or higher), two students who had scored in the "Middle" one-third (raw score of 14 to 16), and two students who had scored in the "Low" one-third (raw score 13 or less), on this instrument.

Sixteen Personality Factor Questionnaire--Form A

R. B. Cattell's Sixteen Personality Factor Questionnaire--Form A, 1962 Edition, is a factor analyzed battery

which yields bipolar descriptions of sixteen source traits of personality dimensions interpreted in the light of known correlations with the factors established in behavior over a considerable period of time.²⁶ The separate scales possess split-half reliability coefficients ranging from a high of .93 to a low of .71, and validity (both construct and criterion) coefficients ranging from a high of .96 to a low of .73.²⁷ Four factors were drawn from this questionnaire.

Factor A.--This ten-item scale measures cyclothymia, A+ (warm, sociable) versus schizothymia, A- (aloof, stiff), has a split-half reliability coefficient of .90, a validity coefficient of .88, and teaching has been found to be one of the highest A+ ranking occupations.

Factor I.--This ten-item scale measures premsia, I+ (sensitive, effeminate) versus harria, I- (tough, realistic), has a split-half reliability coefficient of .76, a validity coefficient of .84, and tends to be associated with individuals who act on sensitive intuition.

Factor M.--This thirteen-item scale measures autia, M+ (bohemian, introverted, absent-minded) versus praxernia, M- (practical, concerned with facts), has a split-half

²⁶R. B. Cattell, The Sixteen Personality Factor Questionnaire, Form A, 1962 Edition (Champaign, Illinois: The Institute for Personality and Ability Testing, 1962).

²⁷Raymond B. Cattell and Herbert W. Eber, Handbook for the Sixteen Personality Factor Questionnaire (Champaign, Illinois: The Institute for Personality and Ability Testing, 1962).

reliability coefficient of .88, a validity coefficient of .74, and has been found to distinguish the more creative researchers and artists from the more creative administrators and teachers.

Factor Q1.--This ten-item scale measures radicalism, Q1+ versus conservatism of temperament, Q1-, has a split-half reliability coefficient of .71, a validity coefficient of .74, and tends to be associated with persons who are more well informed, more critical, and more inclined to experiment with problem situations.

Instruments Used to Tap the Cognitive System

Mid-Term Examination

This device is a forty-five-item multiple-choice and true-false test based upon the content offered in the lectures and assigned readings in the textbook and book of readings provided in the Individual and the School course. This test, taken by 631 students, had general content validity, a mean item-difficulty of 32 per cent, a mean item-discrimination of 25 per cent (between top and bottom groups), and a reliability coefficient of .586 using the Kuder Richardson Formula 20 (average of all of the split-halves).

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Final Examination

This device is a ninety-item multiple-choice and true-false test based upon the content offered in the lectures and assigned readings in the textbook and book of readings provided in the course. This test, taken by 680 students, had general content validity, a mean item-difficulty of 26 per cent, a mean item-discrimination of 23 per cent (between top and bottom groups), and a reliability coefficient of .771 using the Kuder-Richardson Formula 20 (average of all of the split-halves).

Instruments Used to Tap the Attitudinal System

The Orientation Inventory

This inventory was developed at Louisiana State University in 1961 in order to assess self-orientation, interaction-orientation, and task-orientation.²⁸ It consists of twenty-seven statements and/or questions regarding attitudes and opinions to which the individual responds by choosing both the least and most preferred of three alternatives presented. It lends itself to application in situations where effective performance

²⁸Bernard M. Bass, The Orientation Inventory (Palo Alto, California: Consulting Psychologists Press, Inc., 1962).

of individuals may be directly related to their attitudes toward solution of problems or completion of tasks and appears to have considerable relevance for research in social inter-relationships, in both large and small groups.²⁹ Three scores are obtained from this inventory.

S--Self-orientation.--This scale reflects concern with oneself, not co-workers' needs or the job to be done, has a test-retest reliability coefficient of .73, has concurrent and construct validity in college and industrial settings, and tends to be associated with individuals who are rejected, dominating, introspective, and unresponsive to the needs of others around him.

I--Interaction-orientation.--This scale reflects concern with maintaining harmonious relationships in group activities, has a test-retest reliability coefficient of .76, has concurrent validity in college and industrial settings, and is associated with high interest in group activities.

T--Task-orientation.--This scale reflects concern with completing a job and solving problems, has a test-retest reliability coefficient of .75, has concurrent

²⁹Bernard M. Bass, The Orientation Inventory Manual (Palo Alto: California: Consulting Psychologists Press, Inc., 1962).

and construct validity in college and industrial settings, and is associated with working hard within a group to make it as productive as possible.

Vocational Values

Dipboye and Anderson developed a list of nine vocational values, which was administered to 1,181 students attending schools in central New York.³⁰ The most important finding was the general overall similarity in the pattern of mean rankings for both ninth and twelfth grade boys and girls ($Rho=0.83$). One statistically significant difference did appear when the mean rankings of the individual values for the various groups were compared in that the girls tended to give higher rankings than boys to the value "Relations with Others."

In an unpublished study, Van Winkle added a tenth value to the original list which was called "Service to Others."³¹

"Relations with Others".--This vocational value was described as "a job where I can work with people I

³⁰W. J. Dipboye and W. F. Anderson, "The Ordering of Occupational Values by High School Freshmen and Seniors," The Personnel and Guidance Journal, XXXVIII (1959), 121-124.

³¹Lyman Van Winkle, Jr., "A Study to Determine the Probability of Relationships Between the Educational and Vocational Goals of Ninth Grade Students in Hile Junior High School and Their Level of Acceptance of These Goals for Self-Actualization" (unpublished Master's thesis, Michigan State University, 1960).

like;" had a mean of 4.65, and a standard deviation of 1.97 when endorsed by 187 twelfth grade girls.*

"Service to Others".--This vocational value was described as "a job where I can help people," and was endorsed as the most important among ten vocational values by 14 per cent of fifty-seven ninth grade students at the end of a full-year group educational and vocational guidance course.*

Instruments Used to Tap the Self System

Three Self-Concept Ratings

A list of twenty-nine adjectives was drawn from a study reported in The Adjective Check List Manual, and consists of nineteen adjectives checked significantly more often about adult males with higher self versus ideal-self concepts and ten adjectives checked significantly more often about men with lower self versus ideal-self concepts.³²

Each student was asked first to describe himself ("MYSELF") on the list of twenty-nine adjectives in the usual way, and then to take the list a second time to

*Due to the instructions employed, the lower the mean, the higher the ranking of the value.

³²Harrison G. Gough and Alfred B. Heilbrun, Jr., The Adjective Check List Manual (Palo Alto, California: Consulting Psychologists Press, 1965), pp. 16-17.

describe his ideal self ("MY IDEAL SELF"), the person he would "ideally like to be," and finally, to take the list a third time to describe himself as a teacher ("MYSELF AS A TEACHER"), the person he would like to be as a "classroom teacher two or three years in the future."

Summary

The study was specifically designed: (1) to describe, via daily diaries recorded by instructors A and B, two methods of instructional use of Focused Observations selected from the behavioral model of the elementary school teacher; (2) to investigate the effects of the instructional procedures on students' capacities to solve instructional problems; and (3) to ascertain the correlation between students' responses on several psychological scales and their responses on four criterion instruments.

The students were randomly assigned to Groups A, B, and C. Use of a table of random numbers resulted in five groups of twenty-seven students each. Complete data on a total of 135 students were made available for the various statistical analyses (chi-square test, analysis of variance and the F statistic, simple correlation, and partial correlation). Groups A (A1 and replication A2) under instructor A, received treatment A; Groups B (B1 and replication B2) under instructor B,

received treatment B; Group C under instructor C, received no experience in problem-solving and/or decision-making using Focused Observations. This procedure provided for an immediate replication of instructional treatments A and B within the design of the study.

Following the treatment period, Groups A, B, and C, completed the criterion instruments designated as: (1) Focused Observations numbered 53 and 214, with no alternatives listed; and (2) Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher (see Appendix C). A comparison of the responses of the five groups with respect to these criterion instruments was made to investigate the effects of the instructional procedures on each of the following: (1) divergent thinking; (2) flexible endorsement; and (3) ease-difficulty of producing and endorsing alternative actions.

Before and after the treatment period, Groups A and Groups B completed the instruments designated as: (1) Focused Observations Numbered 53 and 214, with no alternatives listed; and (2) the several scales used to measure selected psychological characteristics representative of the response systems (see Appendix D). A comparison of the responses of the four treatment groups with respect to these instruments was made to

investigate the effects of the instructional procedures on each of the following: (1) divergent thinking; (2) flexible endorsement; (3) ease/difficulty of producing and endorsing alternatives. The responses of the four treatment groups on these criterion instruments (post-test score minus the influence of the pretest score), were then correlated with their responses on the several psychological scales.

The Learning Systems Institute's Mott Study: "Teaching in the Inner City" had two major objectives: (1) to describe the teaching behaviors of practicing elementary teachers who have demonstrated particular aptitude in teaching the culturally deprived child; and (2) to identify teaching behaviors "peculiar" to competent elementary teaching in selected inner city schools in Detroit, Flint, and Grand Rapids, Michigan. Descriptions of teaching behaviors were obtained by use of a specially adapted form of the "Focused Observation," an instrument for observing, recording, and describing small units of teaching behavior.

Two selected panels of competent elementary teachers (fourteen local teachers formed Referent Group A, and fourteen intern consultants formed Referent Group B), screened and judged 277 behavior descriptions with respect to their representativeness and appropriateness to inner city teaching. Consensus by twelve members of

each referent group produced Model A and Model B, respectively. Comparison of Model A (230 descriptions), and Model B (189 descriptions), indicated that 52 behaviors were unique to Model A, 11 behaviors were unique to Model B, and 178 behaviors were common to both Model A and B.

During the Winter Quarter, 1966-1967, instructors A and B selected one Focused Observation from each of the classification categories of teacher behavior (see Appendix F). Various criteria and selection procedures resulted in the selection of forty-five Focused Observations that were used as the basis for the instructional procedures in the study (see Appendix A).

Various procedures were described and these resulted in the choice of the content problem in two Focused Observations as the most appropriate and representative for use in the study as criterion instruments: (1) Focused Observations numbered 53 and 214, with no alternatives listed; and (2) Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher on the basis of previous research (see Appendix C).

Descriptive data were provided on the several scales used to measure selected psychological characteristics representative of the response systems available to each student, as discussed earlier in the study (see Appendix D).

CHAPTER IV

THE INDIVIDUAL AND THE SCHOOL COURSE, THE INSTRUCTORS QUALIFICATIONS, THE POPULATION, THE SAMPLE, GROUPING AND ADMINISTRATIVE PROCEDURES, AND DATA COLLECTION PROCEDURES

The Individual and the School Course

The description of this pre-student-teaching course was taken from the Michigan State University Catalog as follows:

200 Individual and the School 5(3-2)* Sophomores

Major psychological factors in the school learning-teaching situation; concepts in human development related to problems in the school situation; teacher's role in motivation, conceptual learning, problem solving and the development of emotional behavior, attitudes and values; learning of skills; retention and transfer; and measurement of student abilities and achievement.¹

The text used in the course was the second edition of Frederick J. McDonald's Educational Psychology.² The

*5(3-2) means that this is a five term-hour credit course, having three lecture and two laboratory (discussion group) sessions a week.

¹Office of the Registrar, Michigan State University, Catalog Issue, 1966 (East Lansing: Michigan State University, December, 1965), p. A-30.

²Frederick J. McDonald, Educational Psychology (2nd ed.; Belmont, California: Wadsworth, 1965).

book of readings used in the course was the second edition of Readings for Educational Psychology, by Fullagar, Lewis, and Cumbee.³

Ten College of Education faculty members, selected from the Department of Counseling, Personnel Services, and Educational Psychology, presented the lectures in the course during the Spring Quarter, 1967. Each lecture was presented twice daily, on Monday, Wednesday, and Friday mornings and afternoons, to two groups of about 350 students each.

The several discussion groups, composed of about thirty students each, met either in the mornings or in the afternoons on Tuesdays and Thursdays, with their respective discussion instructors. As noted in Chapter I of this study, the Tuesday and Thursday discussion sessions were defined as treatment sessions.

The names of the lecturers, the lecture topics and presentation dates, the treatment sessions, the code numbers of the Focused Observations used on each of the treatment sessions, and various other pertinent facts, are presented in Figure 4.1 below.

³William A. Fullagar, Hal G. Lewis, and Carroll F. Cumbee, (editors), Readings for Educational Psychology (2nd ed.; New York: Thomas Y. Crowell Company, 1964).

Monday	Tuesday	Wednesday	Thursday	Friday
		Mar. 29 <u>Rex</u> Introduction to Education 200	Pretest	Mar. 31 <u>Green</u> Scientific As- pects of Teach.
Apr. 3 <u>Byers</u> Classical & Oper- ant Conditioning	1.1 1 1.2 1.3	Apr. 5 <u>Byers</u> Chaining-Multiple Discrimination Concept Learning	1.31 2 1.32 1.33	Apr. 7 <u>Byers</u> Principle Learn- ing, Problem Solving
Apr. 10 <u>Farquhar</u> Motivation	1.34 3 1.4 2.1	Apr. 12 <u>Farquhar</u> Motivation	3.1 4 3.1 3.2	Apr. 14 <u>Shulman</u> Controversies About Learning
Apr. 17 <u>Shulman</u> A Model for Learn- ing & Instruction	8.1 5 8.11 8.12	Apr. 19 <u>Shulman</u> Gagne-Bruner Instructional Examples	8.2 6 8.21 8.22	Apr. 21 <u>Shulman-Farquhar</u> The Future of Teaching
Apr. 24 <u>Green</u> Environment & Learning	Trial Examination	Apr. 26 <u>Green</u> Environment & Teaching	7 Film: 4.12 Children Without	Apr. 28 MICI Group
May 1 <u>Clarizio</u> Phys. Devel. & Class. Function	4.11 8 8.22 10.1	May 3 <u>Clarizio</u> Devel. Tasks & Readiness	4.21 9 10.3 10.4	May 5 <u>Clarizio</u> Devel. Sequen. of Intellectual Growth
May 8 <u>Hamachek</u> The Dynamics of Self	6.1 10 6.11	May 10 <u>Hamachek</u> Elementary Dem- onstration	May 11 EXAM	May 12 <u>Hamachek</u> Mental Health
May 15 <u>Mehrens</u> Kinds & Causes of Indiv. Differ- ences	T.V. Feedback	May 17 <u>Mehrens</u> Providing for Intell. Differ- ence in School	6.2 11 6.3	May 19 <u>Mehrens</u> Individual Differ- ence in Teachers
May 22 <u>Hamachek</u> Intelligence-IQ- & Creativity	7.1 12 7.2 5.3	May 24 <u>Costar</u> Guidance Pro- grams in Schools	5.4 13 4.22 5.1	May 26 <u>Costar</u> Guidance Responsi- bility of Teachers
May 29 <u>Hamachek</u> Maximizing Learning	Memorial Day Recess	May 31 <u>Freeman</u> Indices of rela- tive performance	Post-test	June 2 <u>Freeman</u> Concepts of Re- liability & Validity
June 5 Final Examination	Term Report or Project: Groups A1, B1: 5.2, 6.2, 7.4, 9.1, 10.2 Groups A2, B2: 5.5, 6.4, 9.3, 9.4, 10.5			

FIGURE 4.1

Individual and the School: Organization
of Activities

Description of the Instructors
Qualifications

Instructor A, a male, had an A.B. degree in secondary education, a M.A. degree in school counseling, and had nearly completed an Ed.D. in student personnel services. He has had an extensive background in teaching, counseling, and administration and is currently on leave of absence as an associate professor of psychology at Hillsdale College, Hillsdale, Michigan.

Instructor B, a male, had a B.S. degree in business administration, a B.D. degree in theology, a M.A. degree in guidance and counseling, and had nearly completed a Ph.D. in counseling psychology. He has had a broad background in business management, the military, and as an ordained clergyman. More recently, he has gained intensive experience in college teaching and counseling, and in the dynamics of group psychotherapy.

Instructor C, a female, had an A.B. degree in elementary education, a M.A. degree in educational administration, and had nearly completed an Ed.S. in educational administration. She has had sixteen years of teaching and administrative experience at the elementary school level.

All of these instructors were enrolled in the college teaching internship in educational psychology and were employed as graduate assistants in the School of Teacher Education at Michigan State University during the 1966-1967 school year.

The Population

The population consisted of approximately 700 sophomore-junior-level college students who had enrolled in a pre-student-teaching course in educational psychology, at Michigan State University, during the Spring Quarter, 1967.

Prior to the Spring Quarter of the 1966-1967 school year, an attempt was made to secure the cooperation and participation of the course coordinators and the several instructors involved in the course. All of the persons approached were cooperative, and procedures were undertaken to assure random assignment of students to the various discussion sections of the course, several of which were to include only prospective elementary teachers.

The Sample

The students participating in this study were enrolled in the Individual and the School course during the Spring Quarter of the 1966-1967 school year, at Michigan State University. Each of the students was interested in an elementary teaching career although the student was not required to designate a choice of major until the end of his sophomore year at college. It was impossible to precisely determine how many of these students were seriously committed to a career in elementary teaching.

All of the students in the sample had designated an elementary teaching major.

The sample consisted of 147 prospective elementary teachers who remained in the course for the ten-week Spring Quarter, and received a final grade in the course. Every attempt was exerted to obtain scores for absent students on each instrument and personality scale used in the study. These attempts were completely successful, so that there were no sample losses and complete data were obtained from the entire sample.

The sample was alphabetically assigned to one of five discussion groups; each group consisted of approximately thirty students. The students assigned to discussion groups designated as Groups A1, B1, and C in this study were drawn from a pool of approximately ninety students who requested a morning discussion session. The students assigned to discussion groups designated as Groups A2 and B2 in this study, were drawn from a pool of approximately sixty students who requested an afternoon discussion session. This procedure resulted in approximately equal enrollments in the five discussion groups: Groups A1, A2, B1, B2, and C, consisted of thirty, thirty-one, thirty-one, twenty-seven, and twenty-eight students, respectively.

As discussed earlier in Chapter III, under the sub-heading "Statistics," the data collected on twelve

students were eliminated from statistical consideration in the study by use of a table of random numbers. Therefore, the data reported below in Table 4.1, Table 4.2, Table 4.3, and Table 4.4 refer to only twenty-seven students located in each of the five groups and to a total of 135 students.

The chi-square test of independence was employed in order to ascertain whether or not any systematic biases existed among the five groups with respect to selected demographic factors. This information was obtained by use of the Personal Data Sheet which was completed by each student at the beginning of the course (see Figure 4.2). Groups A1, A2, B1, B2, and C were compared with respect to selected demographic factors as follows: marital status, sex, age, number of term hours of credit currently carried, rural versus urban background, class at college other than Sophomore, socio-economic class (defined as Working, Middle, and Upper), number of students having had prior teaching experience, and number of students having had one or more courses in Psychology and in Education.

In employing the chi-square test of independence, the hypothesis to be tested was that the proportions of each selected demographic factor in each sub-sample (each of the five discussion groups), were equal. Since there are five cells, there are $N-1$, or four degrees of

PERSONAL DATA SHEET

NAME _____ AGE -20 21+

CAMPUS ADDRESS _____ PHONE _____

HOME ADDRESS _____ MARITAL STATUS _____

CLASS: Fr. Soph. Jr. Sr. HOURS CARRIED: 14 or less, 15+

Would you classify the area in which you grew up as
 basically: _____ Rural _____ Urban

Which social class would you say you belonged in:

_____ the Working Class
 _____ the Middle Class
 _____ the Upper Class

1. Your teaching experience:
2. Does any member of your immediate family teach? _____
 If so, who and where?
3. Why are you enrolled in this course (what do you expect to achieve in this course?)
4. What are your goals at the present time:
 Educational?
 Vocational?
5. What courses have you taken in:
 Education?
 Psychology?

Please indicate any other information you think would benefit your instructor: (Use the reverse side)

FIGURE 4.2

Personal Data Sheet

freedom. The .05 level of significance was used with regard to the decision to reject or accept the notion of independence. The chi-squares calculated for each discussion group with respect to each of the selected demographic factors, are summarized in Table 4.1 below.

TABLE 4.1.--Selected demographic factors and chi-square values for five discussion groups.

Selected Demographic Factors	Groups*					χ^2 **
	A1	A2	B1	B2	C	
Married	1	3	2	1	2	1.600
Males	0	0	1	1	1	2.000
Age: 21+	3	3	3	4	3	.250
Term Hours: 14-	8	9	4	4	10	4.571
Rural	7	4	8	7	5	1.742
Junior Class	7	9	5	7	7	1.143
Working Class	1	1	2	3	1	2.000
Upper Class	0	0	0	2	3	8.000
Teaching Experience	12	6	7	13	18	8.464
Number of Students:						
Psych. Courses	16	18	13	12	16	1.600
Educ. Courses	6	4	7	10	6	2.909

*N=27 in each group; total N=135.

** $.95=9.5$ Therefore, the researcher would not reject the notion of independence at the .05 level.

These results indicate that with respect to the selected demographic factors cited in Table 4.1, the five discussion groups were indeed equal, i.e., no systematic bias was indicated. Therefore, the researcher accepts the notion of independence at the .05 level of confidence.

The five groups of prospective elementary teachers were also compared via analysis of variance and the F statistic, with respect to both their entry to college scores on the College Qualification Tests and their current grade-point averages, as determined from the current records of Michigan State University. The results of these analyses are presented in Table 4.2 below.

The results of these analyses clearly demonstrate that there was no significant difference among the means of the five groups with respect to the three sub-test scores and the total score on the College Qualification Tests. Further, the five groups did not differ significantly with respect to their grade-point averages earned to date at Michigan State University. These results indicate that with respect to these scores and averages, the five discussion groups were indeed equal, i.e., no systematic bias was indicated.

Before the treatment period, Groups A and B were given Focused Observations numbered 53 and 214, presenting only the problem-solving situation. A comparison of the responses was made to ascertain whether or not any systematic biases existed among the four treatment groups with respect to each of the following: (1) divergent thinking; (2) flexible endorsement; and (3) ease/difficulty of producing and endorsing alternatives.

TABLE 4.2.--Means, standard deviations, F statistics, and significance of F statistics on the college qualification tests scores and grade-point averages for five discussion groups.

C. Q. T. and G. P. A.	Groups												Analysis of Variance	
	A1		A2		B1		B2		C		Overall			
	C.Q.T. N=27	N=25*	N=27	N=25*	N=27	N=25*	N=26*	N=130	N=27	N=26*	N=129			
	$\bar{X}$	S. D.	$\bar{X}$	S. D.	$\bar{X}$	S. D.	$\bar{X}$	S. D.	$\bar{X}$	S. D.	$\bar{X}$	S. D.		F Stat.
College Qualification Tests														
Verbal	53.48	11.17	51.56	13.68	52.41	10.59	49.68	10.29	51.73	9.70	51.80	11.05	0.403	0.307
Information	43.70	7.56	43.36	8.65	43.85	6.35	44.20	5.80	43.08	5.89	43.64	6.83	0.101	0.982
Numerical	24.41	6.98	27.12	7.37	25.11	7.02	25.36	6.78	26.77	7.37	25.73	7.07	0.681	0.607
Total	121.59	18.59	122.04	23.05	119.52	13.95	119.24	13.60	121.58	16.31	120.79	17.18	0.145	0.955
Grade-Point Averages														
Term Hours Credits Earned	74.56	24.23	69.71	22.19	65.74	19.76	61.96	26.66	65.81	22.94	67.64	23.24	1.594	0.363
Grade Points Earned	180.56	64.17	174.04	62.91	148.22	51.52	143.63	66.27	162.78	66.05	161.98	62.97	1.675	0.160
Grade Point Average	2.44	0.47	2.21	0.86	2.26	0.32	2.06	0.82	2.51	0.58	2.29	0.65	2.157	0.077

*Adjusted number of students for whom data were available.

**p < .05.

The results of these analyses are presented in Table 4.3 below. The variable codes and verbal descriptions to be used in interpreting Table 4.3 are presented in Figure 4.3.

An analysis of variance of the difference among means of the four treatment groups, with respect to the students' responses on these criterion instruments, were not significant at the .05 level of confidence.

Before the treatment period, Groups A and B also were given the several scales used to measure selected psychological characteristics of students. A comparison of the responses was made to ascertain whether or not any systematic biases existed among the four treatment groups with respect to characteristics representative of the response systems available to each student. The results of these analyses are presented in Table 4.4 below.

An analysis of variance of the difference among means of the four treatment groups, with respect to the students' responses on these personality scales, with one exception, were not significant at the .05 level of confidence.

Therefore, it was reasonable to assume that any results attributed to instructional treatments A and B, could not also be attributed to pretest differences existing among the four treatment groups with respect to the following: (1) selected demographic factors; (2)

TABLE 4.3.--Means, standard deviations, F statistics and their significance for four treatment groups on eight variables measured by Focused Observations numbered 53 and 214, with no alternatives listed.

Variables**	Groups*						Analysis of Variance				
	A1		A2		B1		B2		F	Stat.	Signif.
	$\bar{x}$	S. D.	$\bar{x}$	S. D.	$\bar{x}$	S. D.	$\bar{x}$	S. D.			
PREAL53	6.26	2.30	7.00	2.18	6.67	2.22	6.41	2.36	0.555		0.646
PREAL214	6.74	2.36	6.85	2.32	6.93	2.27	6.89	2.14	0.033		0.992
PREAD53	3.22	1.91	3.33	1.84	3.30	1.90	3.00	1.59	0.183		0.908
PREBC53	3.04	1.34	3.67	1.64	3.37	1.45	3.41	1.39	0.845		0.472
PREAD214	2.85	2.09	2.89	1.85	3.04	1.85	2.59	1.53	0.273		0.845
PREBC214	3.89	1.53	3.96	1.70	3.89	1.40	4.30	1.77	0.397		0.756
PREDIF53	2.48	1.40	3.00	0.92	2.48	0.89	2.44	0.93	1.711		0.169
PREDI214	2.70	1.17	3.11	0.97	2.78	0.97	2.74	1.23	0.796		0.499

***N=108.**

****Variable codes and verbal descriptions are presented in Figure 4.3.**

PREAL53:	Pretest--Number of Alternatives Produced to the Content Problem Presented in Focused Observation 53.
PREAL214:	Pretest--Number of Alternatives Produced to the Content Problem Presented in Focused Observation 214.
PREAD53:	Pretest--Number of <u>A</u> and <u>D</u> Endorsements of Alternatives Noted <u>By</u> the <u>Student</u> Himself on Focused Observation 53.
PREBC53:	Pretest--Number of <u>B</u> and <u>C</u> Endorsements of Alternatives Noted <u>by</u> the <u>Student</u> Himself on Focused Observation 53.
PREAD214:	Pretest--Number of <u>A</u> and <u>D</u> Endorsements of Alternatives Noted <u>By</u> the <u>Student</u> Himself on Focused Observation 214.
PREBC214:	Pretest--Number of <u>B</u> and <u>C</u> Endorsements of Alternatives Noted <u>By</u> the <u>Student</u> Himself on Focused Observation 214.
PREDIF53:	Pretest--Ease/Difficulty Experienced in Producing and Endorsing Alternatives on Focused Observation 53.
PREDI214:	Pretest--Ease/Difficulty Experienced in Producing and Endorsing Alternatives on Focused Observation 214.

FIGURE 4.3

Legend for Eight Criterion Variables Measured
 by Focused Observations 53 and 214,
 With No Alternatives Listed, and
 Presented in Table 4.3.

TABLE 4.4.--Means, standard deviations, F statistics, and their significance for four treatment groups on selected personality characteristics.

Pretest Personality Scales	Groups*								Analysis of Variance	
	A1		A2		B1		B2		F Stat.	Signif.
	$\bar{x}$	S. D.	$\bar{x}$	S. D.	$\bar{x}$	S. D.	$\bar{x}$	S. D.		
Intracception	14.04	4.16	14.67	3.85	14.96	4.24	14.56	3.38	0.262	0.853
Factor A	13.44	2.58	12.74	3.27	11.93	2.80	13.33	2.84	1.574	0.200
Factor I	12.96	2.38	12.00	2.63	12.56	2.33	11.56	2.04	1.860	0.141
Factor M	13.19	3.66	12.78	3.81	12.30	3.09	12.48	3.06	0.348	0.791
Factor Q1	9.59	2.80	9.33	2.51	9.89	2.93	8.85	2.49	0.721	0.542
SELF	24.30	5.08	24.07	4.80	22.04	5.87	24.11	5.84	1.045	0.376
INTERACTION	28.89	4.78	28.63	6.92	29.15	5.54	28.33	4.94	0.105	0.957
TASK	27.81	6.19	28.30	5.78	29.81	6.34	28.56	5.06	0.572	0.635
MYSELF	8.67	4.22	9.44	3.25	9.89	2.59	10.00	3.75	0.805	0.494
MY IDEAL SELF	15.67	2.56	15.85	1.38	14.33	3.76	16.11	1.58	2.707	0.049**
MYSELF AS A TEACHER	15.63	2.26	16.15	1.03	15.89	1.80	16.30	2.13	0.669	0.573
Relations with Others	3.56	1.50	3.41	2.19	2.78	1.12	3.04	1.60	1.238	0.300
Service to Others	3.59	2.52	4.52	2.41	3.30	1.84	2.93	2.04	2.546	0.060

*N=108.

**p < .05.

scores on the College Qualification Tests; (3) grade-point averages earned to date; (4) divergent thinking; (5) flexible endorsement; (6) ease/difficulty of producing and endorsing alternatives; and (7) selected personality characteristics.

Grouping and Administrative Procedures

The grouping procedures were designed to provide an immediate replication of each instructional treatment on a second group: Groups A (A1 and immediate replication A2), under instructor A, received instructional treatment A; Groups B (B1 and immediate replication B2), under instructor B, received instructional treatment B; Group C under instructor C, received no treatment, i.e., was not provided with any experience in problem-solving and/or decision-making using selected Focused Observations.

Groups A and B were provided with experience in problem-solving and/or decision-making using forty Focused Observations selected from the 241 available in the Learning Systems Institute's descriptive study of elementary teaching in the inner city (see Appendix A and Appendix B).

Procedure Unique to Groups A

Prospective elementary teachers assigned to Groups A (A1 and immediate replication A2), were provided with the opportunity to discuss thirty-five Focused

Observations during the ten-week Spring Quarter. Either two or three Focused Observations were discussed on each of the thirteen treatment sessions.

The students assigned to Groups A were assigned to one of five small-groups of six students each, on the basis of their pretest scores on the complete twenty-eight-item Intracception scale drawn from the Edward's Personal Preference Schedule.⁴ Each small-group consisted of two students who had scored in the highest one-third, two students who had scored in the middle one-third, and two students who had scored in the lowest one-third, on the Intracception scale.

In order to maximize the interpersonal interactions among those students who had scored in the "High," "Middle," and "Low" one-thirds on the Intracception scale, the members of each small-group were reassigned among the small-groups after every two treatment sessions, with only one exception. This procedure resulted in each student, who had scored in the "High" one-third, having several opportunities to interact with students who had scored in the "Middle" and "Low" one-thirds on the Intracception scale.

While in the small-groups, the students devoted approximately eight minutes to discussing various

⁴Allen L. Edwards, Edward's Personal Preference Schedule (New York: The Psychological Corporation, 1954).

alternative actions, possible consequences, a rationale, and supporting generalizations from the content of educational psychology, for each of the two or three Focused Observations used during that treatment session (see Appendix B).

The approximately twenty-five minutes remaining during each treatment session were devoted to large-group (entire group of approximately thirty students who sat in chairs arranged in a large circle), discussion of each of the problem-solving situations. This was immediately followed by presentation and analysis of the complete Focused Observation model solution as published by the Learning Systems Institute (see Appendix A).

Procedure Unique to Groups B

Students assigned to Groups B (B1 and immediate replication B2), were also provided with opportunity to discuss thirty-five Focused Observations during the ten-week Spring Quarter. Either one or two Focused Observations worksheets were discussed on each of the thirteen treatment sessions, and either one or two Focused Observation worksheets were used as a homework assignment, as appropriate and determined by instructor B.

The students in Groups B were grouped on each treatment session, using various criteria, such as "High," "Middle," or "Low" Task-Orientation as determined

from their pretest scores, and in different ways, on a highly flexible basis, such as the following:

1. Four sub-groups of seven to eight students each;
2. Three sub-groups of about ten students each;
3. Two sub-groups of about fifteen students each;
4. No sub-groups, i.e., one group;
5. Fourteen sub-groups of two students each for twenty-five minutes, and seven sub-groups of four students each for twenty-five minutes;
6. Two sub-groups, formed into (a) a large circle consisting of about twenty-six students, and (b) an inner circle of four volunteer students;
7. Two sub-groups of six students each, and a larger group of sixteen students divided into four "listening teams," each with roles assigned as follows: four "criticizers," four "expanders," four "exemplars," and four "summarizers"; and
8. Various combinations and variants of the above.

Great emphasis was placed upon building a classroom atmosphere in Groups B that encouraged feelings of freedom, naturalness, authenticity, and sensitivity to the feelings of other persons. Throughout each of the treatment sessions, instructor B made a conscious effort to relate to his groups as a "warm" and "real" person.

The instructor provided opportunity for four volunteers to have a one-hour "coffee date" after each treatment session, and continued to do so until every student in Groups B had had this experience. Each student on the "coffee date" had the opportunity to offer his unique philosophy of life and his personal view of teaching. The instructor asked the following question: "How, when, and why did you get interested in becoming an elementary school teacher"?

The instructor's general aim in the treatment sessions and during the "coffee dates," was to increase each student's sensitivity to, and awareness of, self and other persons. His short-term goal was to help his students to become "better" teachers, and his long-range goal was to help his students to become "better" human beings.

In Groups B much greater use was made of short three-to seven-minute lectures, presented by instructor B at the beginning of each treatment session. The lectures were based upon the essential content of the lectures, book of readings, and text provided in the Individual and the School course.

Procedure Common to Groups A and B

Instructors A and B recorded extensive daily diaries which present a description of their uses of the

Focused Observations, their daily activities, and the grouping and data collection procedures used in their respective groups on each of the thirteen treatment sessions (see Chapter V).

During the fifth treatment session, an additional five Focused Observation worksheets, presenting only the problem-solving situation, were given to the students for use with respect to a written term-project. Each student was instructed to write no more than two pages on each choice of two out of five Focused Observations to be used for the project. Each student thereby gained additional experience in developing teaching strategies on an individual basis as he generated alternative actions, thought through the probable consequences of his decisions, developed a rationale, and finally, related a principle(s) of educational psychology to his choice of solution to the problem-solving situation presented in each of the Focused Observations.

Additional experience in using the Focused Observations was provided in two ways: (1) each student anonymously evaluated the projects submitted by two anonymous fellow students, and (2) each student later evaluated his own project. A list of specific and general criteria to be used in evaluating these projects was developed (see Figure 4.4); an evaluation sheet also was developed (see Figure 4.5); and both the list and

Evaluation of Term Project in
Individual and the School
Spring '67

A. Specific Criteria:

1. Range, quality, and comprehensiveness of variables, issues, and problems noted.
2. From your viewpoint, was the choice of variable selected for focus reasonable, realistic, obvious, possible, logical? Were any other variables involved that could be of greater significance?
3. Were the alternatives suggested realistic, manageable, and comprehensive?
4. Was the selection of the significant alternative reasonable, possible, obvious, and realistic?
5. Was the rationale offered consistent, relevant, logical, and defensible?
6. Was the principle (hypothesis) offered a broad generalization that is plausible and defensible according to the content of the Individual and the School course?

B. General Criteria:

1. Overall quality of Written Expression?
2. Overall quality of Synthesis, Integration, and Organization?
3. Overall quality of Illustrations, Examples, Supporting Statements?
4. Overall quality of Demonstrated Depth of Understanding?
5. Overall quality and evidence of Thought and Effort?

FIGURE 4.4

List of Criteria

Individual and the School
Spring 1967

Student Number of Paper evaluated _____

A. Comments concerning Specific Criteria:

B. Comments concerning General Criteria:

C. Personal Reactions of Evaluator:

D. Circle the evaluation you would award this paper:

Superior	Above Average	Average	Below Average	Well Below Average
----------	------------------	---------	------------------	-----------------------

E. Student Number of Evaluator _____

Is this your first, or second, or self evaluation?

First _____ Second _____ Self _____

FIGURE 4.5
Evaluation Sheet

the sheet were used in the evaluation of these projects. In order to maintain anonymity, the students used their student numbers on their projects and evaluation sheets.

Instructors A and B collected, read, and returned these evaluations to the students along with both the instructor's evaluation of the project, and a copy of the model solution as presented in the five Focused Observations drawn from the Mott Study behavioral model.

Data Collection Procedures

Procedure in Groups A and Groups B

The data pertinent to this study were gathered through the use of a number of criterion instruments and personality scales, each of which was described in Chapter III. At the beginning of the Spring Quarter, 1967, these instruments and scales were given to all students present for the first class session of Groups A and B.

These instruments and scales were given to the students and were completed during the first class session of the four treatment groups. There were several students who were absent from the initial class session or who added the course to their program during the next week (the official "add period"). These students completed the pretest at their earliest convenience, usually before attending their first class session.

During the last week of classes, following the thirteen treatment sessions, the same instruments and scales were given to all students present in Groups A and B (see Appendix D). In addition, the post-test contained Focused Observations numbered 53 and 214, with twelve alternative actions listed by the researcher, and these instruments were completed after the other instruments had been completed and collected (see Appendix C).

Students who were absent from the two post-test sessions completed the instruments and scales at their convenience during the five-day interval remaining before the Final Examination was administered in the course. As a result of these procedures, complete data were obtained from all students in Groups A and B, with no exception.

Procedures in Group C

During the final class meeting, students in Group C were given Focused Observations numbered 53 and 214, presenting only the problem-solving situation (see Appendix C). After the students had completed these instruments, instructor C collected the materials, and then gave the students Focused Observations numbered 53 and 214, with twelve alternative actions listed by the researcher (see Appendix C).

Students who were absent from this class meeting were contacted by phone, and were given these instruments at their convenience during the five-day interval remaining before the Final Examination was administered in the course. As a result of these procedures, complete data were also obtained from all students in Group C, with no exception.

Summary

The three instructors involved in this study were enrolled in a college teaching internship in educational psychology, and were employed as graduate assistants in the School of Teacher Education at Michigan State University during the 1966-1967 school year.

The population consisted of students enrolled in a pre-student-teaching course, Individual and the School, at Michigan State University during the Spring Quarter, 1967. The sample consisted of 147 students who were randomly assigned to five teaching sections, and was composed of prospective elementary teachers who received a final grade in the course.

The data collected on twelve students were eliminated from the statistical analyses by use of a table of random numbers. This procedure resulted in a statistical sample of 135 students, and in five groups of twenty-seven students each.

Use of the chi-square test of independence demonstrated that no biases existed among the five groups with respect to the selected demographic factors. Use of analysis of variance of the difference among means demonstrated that no biases existed among the five groups with respect to either their entry to college scores on the College Qualification Tests or their grade-point averages earned to date at Michigan State University.

In addition, use of analysis of variance of the difference among means of the four treatment groups demonstrated that no biases existed among the groups on the pretest with respect to the following: (1) divergent thinking; (2) flexible endorsement; (3) ease/difficulty of producing and endorsing alternatives; and (4) selected personality characteristics (with one exception).

The grouping and administrative procedures provided for an immediate replication of instructional treatments on a second group: Groups A (A1 and replication A2), under instructor A, received instructional treatment A; Groups B (B1 and replication B2), under instructor B, received instructional treatment B. The four treatment groups received experience in problem-solving and/or decision-making using selected Focused Observations. Group C, under instructor C, was used as a control

group, and received no experience in problem-solving and/or decision-making using selected Focused Observations.

Students in Groups A were assigned to one of five small-groups of six students each, and were re-assigned to new small-groups after every two treatment sessions. Each small-group consisted of two students who had scored in the "High" one-third, two students who had scored in the "Middle" one-third, and two students who had scored in the "Low" one-third, with respect to their pretest scores on the Intraception scale.

While in their respective small-groups the students discussed possible alternative actions, various consequences, a rationale, and supporting generalizations for each of the two or three Focused Observation worksheets used during that session. The time remaining during each session was devoted to large-group discussion of the worksheets, and this was immediately followed by analysis of the model solution.

Students in Groups B were grouped during each session on a highly flexible basis: the small-groups ranged from fourteen two-person groups to two fifteen-person groups. The students discussed one or two Focused Observation worksheets during each session, and one or two worksheets were used as a homework assignment.

Five Focused Observation worksheets, presenting only the problem-solving situation, were used as the basis for a written term-project. Each student anonymously evaluated the projects submitted by two anonymous fellow students, and finally, evaluated his own project. The criteria and evaluation sheets used in these evaluations were presented, and the various procedures used with respect to the project were discussed. Each student in Groups A and B thereby gained additional problem-solving experience on an individual basis.

Use of the instruments described earlier in Chapter III, generated pretest and post-test data on all students in Groups A and B with respect to each of the following: (1) Focused Observations numbered 53 and 214, presenting only the problem-solving situation; and (2) several scales used to measure selected psychological characteristics of students. On the post-test, data also were generated on the four groups with respect to Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher. Use of the criterion instruments generated post-test data for all students in Group C.

The administrative and data collection procedures described in Chapter IV resulted in complete data being obtained from all students in Groups A, B, and C, with respect to all criterion instruments and personality scales used in this study.

CHAPTER V

THE DAILY DIARIES

One specific aim of this study was to describe via daily diaries recorded by instructors A and B, two different methods of instructional use of descriptive materials selected from a behavioral model of the elementary school teacher. The behavioral model consisted of 241 verbal descriptions available in the Learning Systems Institute's descriptive study of elementary teaching in the inner city.¹

Forty-five Focused Observations were selected from the behavioral model by instructors A and B as appropriate for instructional use in the Individual and the School course. The content problems in thirty-five Focused Observations were common to the treatment groups; five content problems were unique to Groups A, and five were unique to Groups B, and these content problems were used as the basis for a written report in the course.

The Daily Diary for Group A

Session 1--April 4

The instructor spent about five minutes in reviewing the general objectives for the Individual and the

¹Ward and Henderson, op. cit.

School course and in introducing the procedures to be followed during the Tuesday and Thursday discussion group meetings (treatment sessions). Each student was given a copy of the course syllabus and a copy of the evaluation/grading procedures to be used during the Spring Quarter. Three incomplete Focused Observation worksheets (1.1, 1.2, and 1.3, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). Name cards were then distributed along with a sheet giving the small-group assignments for treatment sessions 1 and 2.

The students were then divided into five small-groups to which they had been assigned on the basis of their pretest scores on the Intraception scale.² In each instance, the six-member small-groups were composed of two students who had scored "High," two who had scored "Middle," and two who had scored "Low" on their need for Intraception. The students were instructed to introduce themselves to all members of their respective small-groups, and then to spend approximately eight minutes in analyzing the problem situation, in producing "realistic" alternative actions that could be taken, in thinking through the probable consequences of the "best" alternative as decided upon by their small-group, and in developing a

²Edwards, op. cit.

rationale for their decision with regard to each of the three problem situations. The instructor visited each small-group several times in order to clarify situations and to answer questions as they arose in each of the small discussion groups.

During the last twenty minutes of this treatment session, the students were re-formed into a large-group. In this large discussion group, the individual chairs were placed so as to form a large circle in which each student could read the name card and see the face of every other student in the class. In recognizing the students, the instructor used the first name of the students and encouraged them to also do so. The students volunteered several alternative actions and the probable consequences of the "best" action that could be taken in terms of the problem-solving situation in Focused Observation 1.1. The instructor played the role of moderator of the student-led discussion, and stressed the notion of diversity and flexibility in approaching problems, i.e., to each practical classroom situation there are a variety of acceptable alternative actions that the elementary teacher could take in actual practice. After about eight minutes, the instructor gave each student a copy of the model Focused Observation 1.1, as found in Appendix A.

During the remainder of the session, essentially the same procedure was followed with regard to Focused

Observations 1.2, and 1.3. In each case, the model Focused Observation was presented after a short discussion period moderated by the instructor. During treatment session 1, the emphasis was placed on the generation of a number of alternative actions, and on the probable consequences of the "best" action decided upon by each of the five small-groups.

Session 2--April 6

At the beginning of this treatment session, each student was given a copy of the three incomplete Focused Observation worksheets (1.31, 1.32, and 1.33, respectively), that were to be used during the first half of the session (see Appendix B). Composition of the small-groups was the same as that employed during treatment session 1. While in the small-groups for about twenty-seven minutes, the students' focus was on the one or two "best" alternatives to the problem situation, the probable consequences of following each alternative action, and the rationale for the groups' decision with respect to a "best" action. The instructor moved from group-to-group, answered any query directed to him, and encouraged the students to develop a rationale for their choice of action that could be taken by a "real" teacher.

The students then re-formed into a large circle during the remaining twenty-three minutes of this treatment session. The discussion emphasis in the large-group was on

"realistic" alternatives that a "real" teacher could take, the probable consequences of each alternative, and the reasons why a particular action was deemed "best" by each of the five small-groups. During this session the discussion was rather lively, and a few students felt free enough to present "minority reports" when they disagreed with the probable consequences of specific alternative actions. Following the discussion about each Focused Observation, the instructor gave each student a copy of the model Focused Observation 1.31, 1.32, and 1.33, as found in Appendix A.

Session 3--April 11

The instructor opened this session with a five-minute question and answer period concerning the grading system to be used in the course. Three incomplete Focused Observation worksheets (1.34, 1.4, and 2.1, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). The students were then divided into five small-groups to which they had been rotated and assigned on the basis of their pretest scores on the Intracception scale. In each instance, the six-member small-groups were composed of two students who had scored "High," two who had scored "Middle," and two who had scored "Low" on their need for Intracception. The students were instructed to introduce themselves to all members of their respective groups.

The students devoted about twenty-three minutes in their respective small-groups to discussing the problem situation, possible alternatives, probable consequences, and a rationale for their choice of a "best" alternative action. The instructor again moved among the groups and answered any questions directed to him.

The students were then re-formed into a large circle for the twenty minutes remaining during the session. The general emphasis during the large-group discussion was on the "best" alternative to the problem situation and to the probable consequences of following this course of action. There was some discussion of flexibility of action, and the wide number of variables involved in effective classroom teaching at the elementary level. As was true in the earlier treatment sessions, the instructor assumed a non-directive and/or accepting role as moderator during the student-led large-group discussion. Following the discussion about each Focused Observation, the instructor gave each student a copy of the model Focused Observation 1.3⁴, 1.4, and 2.1, as found in Appendix A.

One unexpected outcome of this treatment session, was the unsolicited comment from several students concerning the forming of new friendships with students who were also majoring in elementary education. The general focus of this feedback was that several students had been on the multiversity campus for several years and this

was the first time they had been afforded the opportunity to interact with fellow students who also aspired to becoming elementary teachers in the future.

Session 4--April 13

The instructor opened this session with a five-minute presentation concerning the four broad categories into which alternative actions to a problem situation could be classified: teacher behaviors could be classified broadly as either Managerial, or Academic, or Psychological, or Social in nature. It was suggested that each of the three problem situations of concern during this session, could have one or more possible alternatives classifiable in each of the four categories. Three incomplete Focused Observation worksheets (3.1, 3.1, and 3.2, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B).

The students devoted the next twenty minutes to small-group discussion of these problem situations, with emphasis upon producing one or more alternative actions in each of the four categories noted above. Composition of the small-groups was the same as that employed during treatment session 3. The instructor moved among the five small-groups, answered any questions directed to him, and clarified the labels employed in the four broad categories of teacher behavior noted earlier.

The students were then re-formed into a large circle for the twenty-five minutes remaining during this treatment session. Approximately twenty minutes were used in discussing alternatives and consequences to the three problem situations. The focus of the discussion was upon the concept of motivation, and as a result, the emphasis was on producing Psychological and Social, rather than Managerial and Academic, alternatives to the problem situations. Following the large-group discussion centered upon each Focused Observation, the instructor gave each student a copy of the model Focused Observation 3.1, 3.1, and 3.2, as found in Appendix A.

The instructor continued to play the moderator role during the large-group discussion. During the last five minutes of this treatment session, the instructor defined and illustrated the concepts of classical conditioning and operant conditioning as used by academic psychologists.

Session 5--April 18

At the beginning of treatment session 5, a copy of three incomplete Focused Observation worksheets (8.1, 8.11, and 8.12, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). The students were then divided into five small-groups to which they had been rotated and assigned on the basis of their pretest scores on the Intraception scale. By following the procedure used in forming groups

in treatment sessions 1 and 3 noted earlier, each of the five small-groups consisted of two students who had scored in the "High," "Middle," and "Low" categories on their need for Intracception. The students were instructed to introduce themselves to all members of their respective small-groups.

The students devoted about twenty-five minutes to developing alternatives and exploring probable consequences of actions that could be taken with respect to the three problem situations. The instructor visited each group, answered questions and encouraged the students to think of a rationale for the group consensus as to the "most desired" alternative action.

The students were then re-formed into a large circle to discuss the outcomes of the small-group discussions. During this treatment session, the instructor assumed a relatively more active role in discussing the rationale for the "most desired" alternatives produced by the students. The general emphasis was on perceiving an underlying principle drawn from the lectures, book of readings, and text provided in the course, which could provide a logical and theoretical basis for a large-group consensus as to the "most desired" alternative produced. Following the discussion about each Focused Observation, the instructor gave each student a copy of the model Focused Observation 8.1, 8.11, and 8.12, as presented in Appendix A.

During the last five minutes of this treatment session, the instructor entertained questions regarding the term paper required in the course, emphasizing the criteria to be used in its evaluation. Each student was provided with a copy of each of the following: (1) the term paper criteria sheet (see Figure 4.4, Chapter IV), (2) the term paper evaluation sheet (see Figure 4.5, Chapter IV), and (3) the five selected incomplete Focused Observation worksheets (5.2, 6.2, 7.4, 9.1, and 10.2, respectively), from which they were to choose two out of five problem-solving situations as the basis for their term paper (see Appendix B).

Session 6--April 20

The instructor devoted about five minutes to answering questions concerning the term paper which was due on or before May 4. The students were instructed to think about various educational psychology principles involved in the "best" alternative action produced to the problem-solving situations to be worked on during the session. A copy of each of the three incomplete Focused Observation worksheets (8.2, 8.21, and 8.22, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B).

The students spent about thirty minutes in their respective small-groups discussing alternative actions

and principles of educational psychology which seemed to relate to these alternatives. Composition of the small-groups was the same as that employed during treatment session 5. The instructor visited each group and emphasized not only the production of "realistic" alternatives, but also, the educational psychology principles involved in the consequences of following through on each action.

The students were then re-formed into a large circle during the last fifteen minutes of this treatment session. The instructor attempted to obtain group consensus upon a "best" alternative action that a teacher could take in each instance, and further, attempted to get group agreement upon a principle which the group wanted to emphasize. General agreement in the large-group was somewhat difficult to achieve, i.e., at least one student disagreed with the general opinion of the group in each case. There were several disagreements as to why specific social and psychological alternatives were relatively "better" when compared to other possible alternative actions. Following a rather lively discussion, the instructor gave each student a copy of the model Focused Observation 8.2, 8.21, and 8.22, as found in Appendix A.

Session 7--April 27

At the beginning of this treatment session, the students were divided into five small-groups to which they had been rotated and assigned on the basis of their pretest scores on the Intraseption scale. By following the procedure used in forming groups in treatment sessions 1, 3, and 5 noted earlier, each of five small-groups consisted of two students who had scored in the "High," "Middle," and "Low" categories on their need for Intraseption. The students were instructed to introduce themselves to all members of their respective small-groups.

This treatment session involved the use of a closed-circuit television presentation of the award-winning thirty-minute film entitled Children Without. Each of the five small-groups had its own television set. The instructor introduced the film by presenting a few remarks about teaching culturally deprived students. A thirty second film-clip taken from the film was shown five minutes after this session had begun. During the next five minutes, each of the five small-groups discussed what they had viewed and their reactions to the film clip. The instructor then distributed copies of the incomplete Focused Observation worksheet 4.12 (see Appendix B). During the next ten minutes, the five small-groups discussed this problem-solving situation. The instructor

moved from group-to-group, and related this situation to the problem presented in the film clip.

The next thirty minutes of this session were used in viewing the television presentation of the film Children Without. The last few minutes of the session were devoted to students' personal reactions to the film and film-clip, and to discussion of teaching culturally deprived children. Each student was given a copy of the model Focused Observation 4.12, as found in Appendix A. This discussion continued for almost an hour after the session with several students who were highly motivated by the film and personally interested in inner city teaching.

Session 8--May 2

The instructor spent about three minutes answering questions about the term paper which would be due at the beginning of the next treatment session. A copy of three incomplete Focused Observation worksheets (4.11, 8.22, and 10.1, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B).

The students were then divided into their respective small-groups and devoted the next twenty-eight minutes to discussing the three problem situations noted above. Composition of the five small-groups was the

same as that employed during treatment session 7. The instructor visited each group several times and not only emphasized the production of "flexible" alternative actions, but also, the logical and probable consequences of a specific choice of action that could be taken by a classroom teacher.

The students were then re-formed into a large circle for the last nineteen minutes of this session and reported the outcomes of their small-group meetings. The student-led discussion demonstrated the existence of some disagreement with respect to the probable consequences and the educational psychology principles involved in the various alternative actions produced in the five small-groups. Following approximately a six-minute discussion centering upon each Focused Observation, the instructor gave each student a copy of the model Focused Observation 4.11, 8.22, and 10.1, as presented in Appendix A.

Session 9--May 4

At the beginning of this treatment session, a copy of three incomplete Focused Observation worksheets (4.21, 10.3, and 10.4, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). The students spent about thirty minutes in their respective six member small-groups, developed alternatives, projected the probable consequences, and related alternative actions to principles

drawn from educational psychology. Composition of the five small-groups was the same as that employed during treatment sessions 7 and 8. The instructor moved from group-to-group, answered questions, and encouraged the development of a rationale for each groups' consensus as to the "most desired" alternative action produced.

The students were then re-formed into a large circle to discuss the outcomes of their respective small-group discussions. The instructor assumed a non-directive and/or accepting role as moderator of the student-centered discussion during the last seventeen minutes of this session. Some disagreement was again encountered with respect to the "most desired" alternative action that an elementary teacher could take in dealing with each of the problem situations. The instructor noted that there usually were several things a teacher could do in every situation, and that a choice of action depended upon whether one was most concerned about either individual feelings or group atmosphere, and either classroom management or academic content. The comments of several students reflected that teaching is indeed complex, and that one almost has to be a "magician" to be a truly effective teacher. These feelings were reinforced verbally by the instructor. Following the large-group discussion about each problem situation, the instructor gave each student a copy of the model Focused Observation 4.21, 10.3, and 10.4, as found in Appendix A.

The last three minutes of this session were taken by a representative from the Human Learning Institute at Michigan State University, who asked for volunteers for a game-playing research study underway in the College of Education. The instructor collected term papers from the students as they left this treatment session.

Session 10--May 9

At the beginning of this session, a copy of two incomplete Focused Observation worksheets (6.1, and 6.11, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). The students were then divided into five small-groups to which they had been rotated and assigned on the basis of their pretest scores on the Intracception scale. By following the procedure used in forming groups in treatment sessions 1, 3, 5, and 7, as reported earlier, each of the five small-groups consisted of two students who had scored in the "High," "Middle," and "Low" categories on their need for Intracception. The students were instructed to introduce themselves to all members of their respective small-groups.

The students spent about twenty-five minutes in their respective small-groups discussing the two problem situations noted above. The instructor visited each group several times, answered questions, and suggested that each small-group develop a rationale based on

educational psychology principles for the groups' determination of the "most feasible" alternative that could be taken with regard to each problem situation.

The students were then re-formed into a large circle to report on their respective small-group concensus with regard to solution of each problem situation. The large-group discussion emphasis was on the assumptions and the rationale developed in each small-group with respect to the alternative actions considered "most feasible." Following the discussion of each problem situation for some eight minutes each, the instructor gave each student a copy of the model Focused Observation 6.1 and 6.11, as presented in Appendix A.

During the last ten minutes of this treatment session, the instructor discussed appropriate methods of preparation for the Midterm Examination which was scheduled for administration during the next discussion session. Student anxieties were encouraged and reduced as much as possible by verbalization. At the end of the session, the instructor gave each student a copy of the term paper evaluation sheet (see Figure 4.5, Chapter IV), and a term paper written by a fellow student. The students were instructed to evaluate this term paper and to return it along with the evaluation sheet during the next discussion period. The instructor remained after the session ended to answer questions about the examination and the term paper evaluation.

Session 11--May 18

The first seven minutes of this treatment session were spent in collecting the term papers and the term paper evaluation sheet (see Figure 4.5, Chapter IV), used for evaluation by each student of his own term paper. A copy of two incomplete Focused Observation worksheets (6.2, and 6.3, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B).

The students spent approximately twenty-five minutes in their respective small-groups discussing the two problem situations noted above. The instructor moved from group-to-group, answered questions, and suggested that the students not only produce alternatives and project the probable consequences of each action, but also, that they develop a rationale for the "most desired" alternative in terms of principles drawn from the lectures, book of readings, and text provided in the course.

The students were then re-formed into a large circle, and during the last eighteen minutes of the session, discussed the results of their interactions while in the small-groups. A rather spirited discussion occurred with respect to the various psychological and social implications of the alternative actions selected as "most desired" by the five small-groups. The instructor noted that there were several actions than an elementary

teacher could take in each problem situation, and that each of these actions could easily be justified in terms of divergent principles of educational psychology.

Following the discussion about each problem situation, the instructor gave each student a copy of the model Focused Observation 6.2 and 6.3, as presented in Appendix A.

Session 12--May 23

At the beginning of this session, each student had his own term paper returned to him along with several term paper evaluation sheets as follows: (1) two completed by fellow students; (2) one completed by the student himself on his own term paper; and (3) one completed by the instructor in charge of the discussion section. The next five minutes of this session were devoted to answering questions about the term paper, the criteria, and the evaluations (see Figures 4.4 and 4.5, Chapter IV).

A copy of three incomplete Focused Observation worksheets (5.3, 7.1, and 7.2, respectively), presenting only the problem-solving situation, were presented to each student (see Appendix A). The students were then divided into five small-groups to which they had been rotated and assigned on the basis of their pretest scores on the Intraception scale. By following the procedure used in forming small-groups in treatment sessions 1, 3, 5, 7, and 10, as noted earlier, each of the six-member

small-groups consisted of two students who had scored in the "High," "Middle," and "Low" categories on their need for Intraseption. The students were instructed to introduce themselves to all members of their respective small-groups.

The students spent about twenty-five minutes in their respective small-groups discussing the three problem-solving situations noted above. The instructor visited each group several times, answered questions, and encouraged the production of a wide range of alternatives that would be represented by at least one action the teacher could take in each of the four broad categories of teacher behavior: Managerial, Academic, Psychological, and Social.

The students were then re-formed into a large circle to discuss the outcomes of their small-group discussions. The instructor again assumed a non-directive and/or accepting role as moderator of the student-led discussion during the twenty minutes remaining in this treatment session. Following the discussion about each problem situation, the instructor gave each student a copy of the model Focused Observation 5.3, 7.1, and 7.2, as presented in Appendix A. The emphasis during this part of the discussion session was upon alternatives representing each of the four categories of possible teacher response and the probable consequences of each alternative action.

Session 13--May 25

The instructor devoted about ten minutes, at the beginning of this the last treatment session, to explanation of the overall evaluation procedures used in the course during the Spring Quarter, 1967. After several questions had been answered, a copy of three incomplete Focused Observation worksheets (4.22, 5.1, and 5.4, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B).

The students spent the next twenty-five minutes in their respective small-groups discussing the three problem situations noted above. The instructor visited each group several times, answered questions, and encouraged the groups to produce "novel-creative" alternative actions that an elementary teacher could take with respect to each of the problem situations.

The students were then re-formed into a large circle to discuss the outcomes of their respective small-group interactions. The instructor again assumed the role of moderator, and was delighted with the number of "novel" alternative actions produced by the small-groups. Following the discussion centering on each problem situation, the instructor gave each student a copy of the model Focused Observation 4.22, 5.1, and 5.4, as found in Appendix A. The emphasis during this treatment session was on Focused Observation 4.22, and an insightful

"creative/novel" alternative action produced by four out of five of the small-groups.

Summary of the Daily Diary
for Groups A

A few minutes, at the beginning and at the end of each treatment session, were usually devoted to general administtrivia and to answering questions related to the Individual and the School course. The students were divided into five small-groups of six members each at the beginning of sessions 1, 3, 5, 7, 10, and 12. Composition of the small-groups during treatment sessions 2, 4, 6, 8, and 9, 11, and 13, was the same as that employed in the session(s) immediately preceding it. Each group was composed of two students who had been classified as scoring "High," "Middle," and "Low" on the basis of their pretest score on the Intracception scale. This procedure resulted in each student meeting and working with all other students in the discussion section, and also, unexpectedly resulted in several students commenting upon the fact that they had formed friendships with several other students who were also majoring in elementary education.

The students generally devoted about twenty-five minutes in their respective small-groups, to discussion of three incomplete Focused Observation worksheets, which presented only the problem-solving situation (see Appendix B). While in their small-groups, the students generated

alternative actions to these problem situations, projected probable consequences for these actions, and developed a rationale for the group consensus as to what constituted the "most desired" or "best" alternative based upon principles drawn from the lectures, book of readings, and text provided in the course. The instructor visited each small-group, answered questions, and verbally encouraged students in their interactions.

The students were then re-formed into a large circle in which the chairs were arranged so that each individual could read the name card and see the face of every other individual in the discussion group. The students generally were in the large-group for about twenty minutes during all but one of the thirteen treatment sessions. The instructor generally assumed a non-directive and/or accepting role as moderator of the student-led discussions in the large-group. Following the large-group discussion centering on each problem-solving situation, the instructor gave each student a copy of the appropriate model Focused Observation, as presented in Appendix A.

The students gained additional experience in problem-solving by using their personal choice of two out of five available problem situations as the basis for their course term paper. The specific criteria employed and the several evaluations completed with respect to the term paper, provided each student with an optimum level of feedback.

At the end of the thirteen treatment sessions these procedures had resulted in the students having received forty incomplete worksheets and forty model Focused Observation sheets for their future reference, i.e., each student had received a complete copy of both Appendix A and Appendix B, as presented in this study.

The Daily Diary for Groups B

Session 1--April 4

The instructor devoted approximately five minutes to outlining the focus of the Individual and the School course, and to discussing the procedures that would be followed in the Tuesday and Thursday discussion group meetings (treatment sessions), during the Spring Quarter, 1967. Each student was provided with a personal copy of the course syllabus and a copy of the evaluation/grading procedures to be used during the Spring Quarter.

It was noted that the general emphasis of the treatment sessions was to be upon: (1) decision-making and/or problem-solving using actual problems faced by "real" elementary teachers; and (2) developing an increased sensitivity to oneself as well as to other persons with whom one interacts both inside and outside the classroom. Three incomplete Focused Observation worksheets (1.1, 1.2, and 1.3, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B).

The students were then divided into four small-groups of seven to eight members each, and each group was instructed to elect a group reporter and a group chairman. Each group then devoted the next twenty minutes to discussion of the three problem situations noted above. The instructor told the students not only to "brainstorm," i.e., to produce as many alternatives as possible to each situation, but also, to come to some group agreement with respect to the "best" alternative action. The instructor visited each group and answered all questions directed to him. He actively participated for a short time in the discussion of one small-group.

During the last twenty-five minutes of this treatment session, the students were re-formed into a large-group. In this large discussion group, the individual chairs were placed so as to form a large circle in which each student could read the name card and see the face of every other student in the discussion section. In recognizing the students, the instructor used the first name of the students, and encouraged them to also do so. Several student volunteers from each small-group reported on the outcomes of their small-group interactions with respect to the problem situation presented in Focused Observation 1.1.

The large-group discussion emphasis, with respect to the alternatives produced, was on providing for

individual needs, differences, motivations, and creative expression. The instructor assumed a non-directive and/or acceptance role as moderator of the student-centered discussion in the large-group. After about eighteen minutes, the instructor presented each student with a copy of the model Focused Observation 1.1, as found in Appendix A.

Since the treatment session was nearly over, the instructor gave each student a copy of the model Focused Observation 1.2 and 1.3, (see Appendix A), and suggested that the students spend a few moments before the next treatment session in comparing their worksheets with the model solutions to each problem situation. During treatment session 1, the emphasis was placed on the generation of a number of alternative actions and on the consensus of the "best" action decided upon by each of the four small-groups.

At the end of the session, the instructor met with four volunteers for about one hour in the Center for International Programs located on the Michigan State University campus. Each student on this "coffee date" was provided with the opportunity to give his philosophy of life as well as his view of teaching as a profession. The instructor asked each student to answer the following question: "How, when, and why did you get interested in becoming an elementary school teacher"? The instructor offered his philosophy of education during this meeting,

and emphasized the need for paying attention to the personal feelings of each individual student in the classroom.

The "coffee dates" were held after each treatment session, and were continued until every discussion section member had availed himself of this opportunity. The instructor's general aim during these "coffee dates" was to increase each student's sensitivity to, and awareness of, self and other persons. His short-term goal was to help these students to become "better" elementary teachers, and his long-range goal was to help these students to become "more open" human beings. During each of these "coffee dates," the instructor gave his own philosophy of education, and emphasized the great need for teachers to be "open" in relating to the feelings of all individuals.

Session 2--April 6

The instructor spent about ten minutes in outlining the major differences between classical conditioning and operant conditioning. Three incomplete Focused Observation worksheets (1.31, 1.32, and 1.33 respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). The students remained in the large-group during the next forty minutes, and focused primarily upon the problem situation presented in Focused Observation 1.31.

The instructor chose one student to write on the blackboard, and presented the large-group with four questions as follows:

1. What variables, issues, and problems should the teacher attend to?
2. What variable, issue, or problem seems to be your major concern here?
3. What alternative actions are available to the teacher?
4. Which alternative action encompasses the most variables, or seems to relate to the most issues or problems?

In response to the first question noted above, the large-group tended to generate alternative actions that dealt with academic content. The instructor played a directive role in encouraging the students to concern themselves with other variables, i.e., a broader category of action that not only considered the interruption of a classroom, but also, paid attention to the needs of all children in a classroom situation.

The major concern of the large-group during this treatment session was with academic content, and only minor interest was shown in classroom management, the psychological needs of all learners, and the social atmosphere of the classroom. Even though general agreement was reached by the large-group with respect to questions three and four cited above, some disagreement was expressed by a minority of students.

Near the close of this treatment session, the instructor suggested that each member of the large-group

consider the following question: "Is there any way in which you can interpret the problem situation, presented in Focused Observation 1.31, in terms of either classical conditioning or operant conditioning"? Following a short discussion with respect to this question, each student was given a copy of the model Focused Observation 1.31, 1.32, and 1.33, as found in Appendix A. Four students met with the instructor for a one-hour "coffee date" after treatment session 2.

Session 3--April 11

The instructor began this treatment session with approximately an eighteen minute lecture on various stimulus-response theories, and gave examples of the practical application of each theory. Focused Observation 1.31 was again introduced and offered as an excellent example of both classical conditioning and operant conditioning.

The students were then re-formed into a large circle, and each student was given a copy of three incomplete Focused Observation worksheets (1.34, 1.4, and 2.1, respectively), presenting only the problem-solving situation (see Appendix B). Approximately ten minutes were spent in large-group discussion of each of these problem situations. The instructor assumed the role of directive discussion-leader, and suggested that the students entertain three questions as follows:

1. What is a 'good' principle drawn from the content of educational psychology?
2. What is the hypothesis you are working with in each situation?
3. Can we generate an appropriate hypothesis on motivation?

Following the instructor-led large-group discussion about each problem situation, each student was given a copy of the model Focused Observation 1.3⁴, 1.4, and 2.1, as presented in Appendix A. The general emphasis during this session was on the large number of variables involved in effective teaching at the elementary school level. The instructor closed this treatment session with a short question and answer period concerning the grading system to be used in the course. Four students met with the instructor for a one-hour "coffee date" after treatment session 3.

Session 4--April 13

The instructor began this session with a five minute explanation of the Student Education Corps, and its operations on the University campus and in the local community. The next ten minutes were used by the instructor in answering questions regarding the term paper required in the course, and emphasizing the criteria to be used in its evaluation. Each student was provided with a copy of each of the following: (1) the term paper criteria sheet (see Figure 4.4, Chapter IV), (2) the term paper evaluation sheet (see Figure 4.5, Chapter IV), and (3)

the five selected incomplete Focused Observation worksheets (5.2, 6.2, 7.4, 9.1, and 10.2, respectively), from which they were to choose two out of five problem-solving situations as the basis for their term paper (see Appendix B).

Three incomplete Focused Observation worksheets (3.1, 3.1, and 3.2, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). The students were then divided into four small-groups of seven or eight members each, and instructed not only to generate alternatives and to think through the probable consequences of each alternative action, but also, to relate these alternatives to basic principles drawn from the lectures, book of readings, and text provided in the course.

The students remained in their respective small-groups for the remainder of this treatment session. The instructor visited each group, answered questions directed to him, and encouraged the students to develop a rationale, for the group consensus as to a "most desired" alternative, that would attend to principles regarding motivation. The instructor actively entered into the discussion in progress in two of the small-groups.

The focus of this treatment session was upon the concept of motivation, and as a consequence, the emphasis

was placed upon producing Psychological and Social, rather than Managerial and Academic, alternatives to the problem-solving situations. During the last ten minutes of this session, the instructor visited each small-group and gave each student a copy of the model Focused Observation 3.1, 3.1, and 3.2, as found in Appendix A. Four students met with the instructor for a one-hour "coffee date" after treatment session 4.

Session 5--April 18

The instructor opened this treatment session with a twenty minute presentation of a model of the learning organism and a model for developing instructional strategies, which were drawn from the text used in the course. These models were schematically represented on the blackboard, and a number of student questions were answered.

The students were then divided into two small-groups of about fifteen members each, and the next ten minutes were devoted to discussion of oral reports given by both groups with respect to the problem situation presented in Focused Observation worksheet 3.2 which was used earlier during treatment session 4. The focus of this discussion was upon developing a rationale, for the group consensus as to a "most desired" alternative, that would attend to sound principles of motivation drawn from the content of the course.

The students were then re-formed into a large circle, and devoted twenty minutes to large-group discussion of the problem-solving situation presented in incomplete Focused Observation worksheets (1.4, 2.1, and 1.34, respectively), which the students had received during treatment session 3. The instructor suggested that the students attempt to answer the following basic question: "What principles, generalizations, or hypotheses can you now generate to the problem situation presented in each of these three incomplete Focused Observation worksheets"? The instructor-led large-group discussion which followed was rather lively, and some general consensus was reached with respect to each of the problem-solving situations entertained during the treatment session.

During the last few minutes of this treatment session, six incomplete Focused Observation worksheets (8.1, 8.11, 8.12, 8.2, 8.21, and 8.22, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). The students were instructed to use these worksheets for homework, and to generate alternatives, to think through the probable consequences of each alternative, and to develop a rationale for their "most desired" choice of alternative with respect to principles drawn from the lectures, book of readings, and text provided in the course. Four students met with the instructor for a one-hour "coffee date" after treatment session 5.

Session 6--April 20

The instructor devoted about five minutes to answering questions concerning the course term paper which was due on or before May 4. The students were then divided into three small-groups of about ten members each for discussion purposes during the next twenty minutes. The three respective small-groups were instructed to work only on one incomplete Focused Observation worksheet (8.1, 8.21, and 8.22, respectively), which they had received earlier during treatment session 5 (see Appendix B).

The instructor encouraged each small-group to develop an answer to the following questions:

1. How does the notion 'We Learn What We Live' relate to your small-group's problem-solving situation?
2. What concepts did the children learn or fail to learn, and what alternative concepts do you want them to learn?
3. Can your group formulate a sound principle of learning similar to Gagne's notion of 'Simple to Complex' learning?
4. What is your group's attitude toward the generalizability of the format used in the model Focused Observation sheets? (see Appendix A).

The instructor visited each of the three small-groups, answered questions, and encouraged the students to answer the four questions noted above.

The students were then re-formed into a large circle, and devoted the remaining twenty-five minutes of this treatment session to large-group discussion of the oral reports presented by members of each of the three

small-groups. General agreement in the large-group was somewhat difficult to achieve with respect to answers to the four questions noted earlier. The instructor assumed a non-directive and/or accepting role during this part of the treatment session.

Following discussion of each problem-solving situation, the instructor gave each student a copy of the model Focused Observation 8.1, 8.21, and 8.22, as found in Appendix A. The students were also given a copy of the model Focused Observation 8.11, 8.12, and 8.2, as presented in Appendix A, for their own reference. The instructor closed the treatment session with a short critical evaluation of our present educational system, and focused upon the effects our institutions and classroom practices have upon the self-concepts of children. Four students met with the instructor for a one-hour "coffee date" after treatment session 6.

Session 7--April 27

This treatment session was unique in that it involved the use of a closed-circuit television presentation of the award-winning thirty minute film entitled: Children Without. At the beginning of this treatment session, the students were divided into two small-groups, each of which had its own television set. The instructor introduced the film by offering a few comments about teaching culturally deprived children in the inner city.

A thirty second film-clip taken from the film was shown five minutes after the session had begun. During the next five minutes, both of the small-groups discussed what they had seen and their reactions to the film-clip. The instructor then gave each student a copy of the incomplete Focused Observation worksheet 4.12 (see Appendix B). During the next ten minutes, the two small-groups discussed this problem-solving situation, and attempted to relate the problem presented in the film-clip to this situation. The instructor visited both groups and answered all questions directed to him.

The next thirty minutes of this session were used in viewing the television presentation of the film Children Without. The last few minutes were devoted to students' personal reactions to the film and film-clip, and to answering questions about teaching culturally deprived children. Each student was also given a copy of the model Focused Observation 4.12, as found in Appendix A. Four students met with the instructor for a one-hour "coffee date" after treatment session 7.

Session 8--May 2

The instructor began this treatment session by answering questions concerning the term paper which would be due at the beginning of the next treatment session. This was followed by a short twelve minute talk about cognitive processes versus personal

feelings, and how our perceptions and life-style affect what we do in an actual classroom. A copy of each of the three incomplete Focused Observation worksheets (4.11, 8.22, and 10.1, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). The students were instructed to focus upon the two latter worksheets and only work on Focused Observation 4.11 as time was available in their respective small-groups.

The students were then divided into fourteen two-person small-groups to which they had been assigned on the basis of their pretest scores on the Task scale of The Orientation Inventory (see Appendix D).³ In each case, the two-member small-groups were composed of one student who had scored in the top one-half and one student who had scored in the bottom one-half on their pretest orientation toward Task.

The instructor encouraged students not only to generate possible alternative actions, but also, to carry out procedures and answer questions as follows:

1. How did you feel about the other person?
2. Touch him, and then tell the other person what you felt when you first met him.
3. Tell the other person what you have learned from him, and something you personally liked or disliked about him.

³Bernard M. Bass, The Orientation Inventory (Palo Alto, California: Consulting Psychologists Press, Inc., 1962).

The instructor moved from group-to-group, answered questions, and encouraged students to answer the questions and follow the procedures noted above.

After about twenty minutes, the students were reformed into seven groups of four members each by combining two two-person groups into a four-person group. The seven four-person groups were then instructed to "share what you told each other while in your two-person groups." The instructor visited several groups during the last fifteen minutes of this session, and generally encouraged the students to be "open" about their personal feelings and to honestly interact on a meaningful level.

During this session, the emphasis was placed upon personal interaction and sharing personal feelings about other persons with whom one has had a meaningful work relationship. Whereas, most students seemed to enjoy and actively participate in these personal processes, a few seemed to be rather reticent about engaging in a deeply personal encounter. At the end of this session, each student was given a copy of the model Focused Observation 4.11, 8.22, and 10.1, as presented in Appendix A. Three students met with the instructor for a one-hour "coffee date" after treatment session 8.

Session 9--May 4

At the beginning of this treatment session, a copy of three incomplete Focused Observation worksheets (4.21, 10.3, and 10.4, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B). This treatment session was unique in that it involved a demonstration and lecture-type presentation by a resource person who had a rich background in both teaching and administration at the elementary school level.

The resource person used about forty black-and-white slides to demonstrate the several steps involved in having elementary school children develop "experience stories" based upon the concrete experiences involved in planning for, and going on, field-trips. The three steps suggested for managing and controlling groups on field-trips were as follows: "(1) Create an atmosphere; (2) Maintain this atmosphere; and (3) Restore this atmosphere (only in the event it should breakdown)."

The general presentation included the following considerations:

(1) Setting the Stage--a disadvantaged first grade class is preparing to go on a field-trip to a local farm in the near future; (2) What could you do?--the children play various roles, discuss what they expect to see, and assign various jobs, such as bringing a camera, to specific classroom members; (3) What did I (the resource person) actually do?--The children did some role-playing beforehand in class, and this had the effect of structuring their expectancies.

On the field-trip, the teacher brought a camera, took pictures, had them developed, and later used them in the first grade classroom to further emphasize concrete experiences. Afterward, each child wrote a short story about their field-trip, and the resource person interpreted this as the "experience approach" to teaching culturally disadvantaged children. It was noted that this approach to writing stories could also be used after visits to an aquarium, a grocery store, and other places of interest in the local community.

The resource person was rather pleased with the amount of discussion, and the questions raised, following her presentation. The general focus of this session was on practical techniques of classroom management and disciplinary control of elementary school children. At the end of this treatment session, the instructor presented each student with a copy of the model Focused Observation 4.21, 10.3, and 10.4, as given in Appendix A. The instructor noted that these sheets were for the personal reference of the students, and then collected term papers from the students as they left this treatment session.

Session 10--May 9

At the beginning of this treatment session, the instructor gave each student a copy of the term paper evaluation sheet (see Figure 4.5, Chapter IV), and a

term paper written by a fellow student. The students were instructed to evaluate this term paper, and to return the term paper along with the completed evaluation sheet during the next discussion period. A copy of two incomplete Focused Observation worksheets (6.1, and 6.11, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B).

During the next twelve minutes, the instructor used the blackboard to outline his three purposes for this treatment session as follows:

1. Assume there are differences in our relating to people. What are these differences?
2. The teacher's personal growth involves both 'openness' to the feelings of other persons. How does this kind of deeply personal growth occur?
3. The teacher must be sensitive to the self-concept and individual needs of each child in her classroom. How can you increase your 'openness' and personal sensitivity to others?

The instructor then asked for four volunteers for an experiment, and these four individuals, along with the instructor, formed a small inner-circle of five chairs in the center of the classroom. The remaining twenty-six members of the class formed their chairs in a large outer-circle around the small-circle, and then observed what happened while keeping in mind the questions noted above.

During the next twenty minutes, the five individuals in the small inner-circle used the problem situation in worksheets 6.1 and 6.11, noted earlier, and attempted to

answer the question: "What could you do"? The instructor asked about the volunteers' feelings as students, as individual persons, and as prospective elementary teachers. He centered on the feelings of two rather "open" volunteers, and probed their personal feelings in some depth as time allowed.

During the next fifteen minutes, the members of the large-group discussed their perceptions with respect to what had occurred in the small-group of four volunteers. A number of students verbalized their personal problems in touching another person, and their feelings with respect to "homosexuality" and "non-acceptance of close contact in our society." Some feelings of open hostility on the part of several students were encountered, and these feelings were interpreted as indications of these individuals' inability to relate personally and "openly" to other people. This fact, of course, tended to increase the hostile feelings of these students.

At the end of the session, each student was given a copy of the model Focused Observation 6.1 and 6.11, as presented in Appendix A. The students were told to spend some time looking over these sheets before the next treatment session. The instructor remained after the session ended to answer questions about the term paper evaluation, and the Midterm Examination which was scheduled for the next class meeting. Several students

also engaged in a "confrontation" with the instructor with respect to the proceedings of the "encounter" which occurred during this treatment session.

Session 11--May 18

The first six minutes of this treatment session were spent in collecting the term papers and the completed term paper evaluation sheet (see Figure 4.5, Chapter IV), used by each student for evaluation of his own term paper. A copy of two incomplete Focused Observation worksheets (6.2, and 6.3, respectively), presenting only the problem-solving situation, were given to each student (see Appendix B).

Several different approaches to grouping students were used during the next twenty minutes of this treatment session. First, six students were formed into a small-group, and instructed to work on the problem situation presented in incomplete Focused Observation worksheet 6.2. Second, another six students were formed into a second small-group, and instructed to work on the problem situation presented in incomplete Focused Observation worksheet 6.3.

The instructor used the blackboard to outline procedures for these two small-groups as follows:

1. What alternative actions could the teacher take to the problem situation presented?
2. Place yourself in the 'shoes' of the children and think of how they feel in the situation.

3. Pay attention to such factors as sex, age, socio-economic background, self-concept, motivations, individual needs, and any other significant factors which could influence your choice of alternative actions.

The remaining members of the discussion section were assigned duties on four "listening teams," i.e., there were four teams of four students each, and each team played one of four roles designated as "criticizers," "expanders," "exemplars," and "summarizers," respectively. Each team was instructed to listen from their role point-of-view to one of the small-groups, and then to later react in the large-group discussion from that role position.

The students were then re-formed into a large circle, and during the remaining nineteen minutes of the session, discussed their perceptions of what had occurred in the two small-groups during the first part of the session. A rather spirited discussion took place with respect to the differing perceptions of the four members of each of the four "listening teams." The instructor related the large-group interactions to some of the basic principles of perceptual psychology.⁴

Following the discussion about each problem situation, the instructor gave each student a copy of the model Focused Observation 6.2 and 6.3, as presented in

⁴ Arthur W. Combs and Donald Snygg, Individual Behavior: A Perceptual Approach to Behavior (New York: Harper and Row, 1959).

Appendix A. The last five minutes of this treatment session were spent in collecting the term papers and the term paper evaluation sheet (see Figure 4.5, Chapter IV), used by each student for evaluation of his own term paper.

Session 12--May 23

The instructor began this treatment session with about a ten minute talk on Combs and Snygg's phenomenological approach to perception and individual behavior, and answered several questions which related to what was perceived by individual students during treatment session 11.⁵ The instructor then gave each student a copy of three incomplete Focused Observation worksheets (5.3, 7.1, and 7.2, respectively), presenting only the problem-solving situation, as found in Appendix B.

The students remained in the large circle for the next thirty-five minutes, and focused primarily upon the problem situation presented in Focused Observation 7.1 and 7.2. The instructor assumed a directive role and led the large-group discussion. Each student was asked to generate alternative actions that an elementary teacher could take and which, in effect, could reduce limitations to perceptions and broaden perceptions, thereby maximizing learning on the part of the learners.

⁵Ibid.

During this treatment session, the instructor encouraged the generation of a wide spectrum of alternative actions that the elementary teacher could take in each of the four broad categories of teacher behavior: Managerial, Academic, Psychological, and Social. Several disagreements occurred during the session with respect to the "most desired" action that the elementary teacher could take in dealing with "slow learners" as opposed to "fast learners." Following the discussion about each problem situation, the instructor gave each student a copy of the model Focused Observation 5.3, 7.1, and 7.2, as presented in Appendix A.

Near the end of this treatment session, each student had his own term paper returned to him along with several term paper evaluation sheets as follows: (1) two completed by fellow students; (2) one completed by the student himself on his own term paper; and (3) one completed by the instructor in charge of the discussion section. The last five minutes of this session were devoted to answering questions about the term paper, the criteria, and the several evaluations (see Figure 4.4, and Figure 4.5, Chapter IV).

Session 13--May 25

A copy of three incomplete Focused Observation worksheets (4.22, 5.1, and 5.4, respectively), presenting only the problem-solving situation, were given to each

student (see Appendix B). The students were then divided into six small-groups of four to five members each. Three of these small-groups were instructed to generate alternative actions the elementary teacher could take, to arrive at a group consensus as to a "best" action, and to discuss a rationale based upon principles drawn from the lectures, book of readings, and text provided in the course.

The other three small-groups were given the same verbal instructions, but in addition, were informed that they would play an "antagonist" role during the last half of the session. The students spent about twenty-five minutes in their respective small-groups. The instructor moved from group-to-group, answered questions, and encouraged the students to carry-out the instructions cited above.

The students were then re-formed into a large circle to discuss the outcomes of their respective small-group interactions. The three groups of antagonists probed, questioned, and evaluated the reports of the other three groups which discussed their alternative actions, their rationale for a choice of a "best" action, and the variables they perceived in each problem-solving situation. The instructor assumed a non-directive and/or accepting role as moderator of the student-led discussion during the twenty-five minutes devoted to large-group

discussion. Following the discussion about each problem situation, the instructor gave each student a copy of the model Focused Observation 4.22, 5.1, and 5.4, as presented in Appendix A.

The instructor closed this treatment session by answering questions about the Final Examination and the overall grading/evaluation procedures used in the course during the Spring Quarter, 1967.

Summary of the Daily Diary for Groups B

At the beginning or at the end of each treatment session, a few minutes were usually devoted to general administrivia and to answering questions concerning the Individual and the School course. The students were variously grouped, on a highly flexible basis, in at least ten different combinations, during the treatment sessions as follows:

1. Four small-groups of seven to eight students each;
2. Three small-groups of about ten students each;
3. Two small-groups of about fifteen students each;
4. Fourteen small-groups of two students each, later re-formed into seven small-groups of four students each;
5. Two small-groups--the first consisting of four volunteers in an inner circle, and the second comprised of the remaining twenty-six students in a large outer circle;
6. Two small-groups of six students each, and the remaining sixteen students divided into four "listening teams";
7. Six small-groups of above five students each; and
8. One large-group consisting of all the discussion group members.

These grouping procedures resulted in each student being provided with the opportunity to meet and work with most, if not all, other members in their discussion section.

The students generally devoted about twenty-five minutes in their respective small-groups, to discussion of one to three incomplete Focused Observation worksheets which presented only the problem-solving situation (see Appendix B). While in the variety of small-groups employed during the treatment sessions, the students usually generated alternative actions to these problem situations, projected probable consequences for these actions, and developed a rationale for the group consensus with respect to what constituted the "most desired" alternative based upon principles drawn from the lectures, book of readings, and text provided in the course. The instructor usually visited each small-group as time allowed, answered questions directed to him, and verbally encouraged the students in their interactions and attempts to answer questions or follow procedures suggested by the instructor.

In nine of thirteen treatment sessions, the students were then regrouped into a large circle in which the chairs were arranged so that each individual could read the name card and see the face of every other individual in the discussion group. The students were in the large-group, consisting of all discussion section members, for about twenty-five minutes during all but four of the

treatment sessions. The instructor generally assumed a directive role at the beginning of the treatment sessions by structuring the questions to be answered and the procedures to be followed during the discussion session.

In comparison to Groups A, extensive use was made of short lectures presented by the instructor at the beginning of most treatment sessions in Groups B. These lectures were generally drawn from the essential content of the lectures, book of readings, and text provided in the course. Also, the instructor made a conscious attempt to break down "traditional barriers" between teachers and their students, and great stress was placed upon "openness" and personal feelings wherever possible.

The instructor sometimes assumed a directive and sometimes assumed a non-directive and/or accepting role in the large-group discussions during the second part of the treatment sessions. Following the small- and large-group discussion centering upon each problem-solving situation, the instructor gave each student a copy of the appropriate model Focused Observation, as presented in Appendix A.

The instructor provided each student with the opportunity to meet with him for a one-hour "coffee date" in the Center for International Programs on the Michigan State University campus. During these meetings, each

student was encouraged to offer his philosophy of life and his view of teaching. The instructor asked each student to answer the following question: "How, when, and why did you become interested in becoming an elementary school teacher"? The instructor gave his own philosophy of education during each of these meetings, and emphasized the great need for the teacher to pay attention to the personal feelings of each individual student in his classroom.

The instructor's general objective during both the "coffee dates" and the thirteen treatment sessions was to increase each student's sensitivity to, and awareness of, himself as well as other persons. His short-term goal was to help each student to become a "better" future elementary teacher, and his long-range goal was to aid each student to become a "more open" human being.

The instructor placed much emphasis on establishing a general classroom atmosphere that would encourage feelings of freedom, naturalness, authenticity, and sensitivity to the feelings of other individuals. Throughout each of the thirteen treatment sessions, the instructor made a conscious, and hopefully unconscious, effort to relate to his students as a "warm" and "real" human being.

Each student gained additional experience in problem-solving and/or decision-making by using his

personal choice of two out of five available problem situations as the basis for his term paper in the course. The specific criteria employed and the four evaluations completed with respect to this term paper, provided each student with an optimum level of feedback.

At the end of the thirteen treatment sessions, these procedures had resulted in each student having received forty incomplete Focused Observation worksheets as well as forty model Focused Observation sheets for their future reference, i.e., each student had received a complete copy of both Appendix A and Appendix B, as presented in this study.

CHAPTER VI

PRESENTATION OF THE DATA

This study was designed to investigate the effects of two different instructional procedures with respect to selected psychological characteristics of students. The students were prospective elementary teachers enrolled in a pre-student-teaching course in Educational Psychology, Individual and the School, at Michigan State University during the Spring Quarter, 1967. The instructional procedures consisted of two methods of instructional use of the content problems presented in forty selected Focused Observations drawn from the Mott Study: "Teaching in the Inner City."

Two Focused Observations were selected as being the most representative and appropriate for use as the content problems for the development of the four criterion instruments used in this study. Two criterion instruments, presenting only the problem-solving situation, were used as part of the pretest and post-test. Two other criterion instruments, presenting twelve alternative actions to the same problem-solving situations, were used as part of the post-test in this study.

The four criterion instruments were used to measure the effects of the instructional procedures, instructional treatments A and B respectively, on the students' capacities to solve instructional problems, as represented by their divergent thinking with respect to the production of alternative actions, their decision-making with respect to flexible endorsement of alternatives, and their self-reported judgment of the ease/difficulty experienced in both producing and endorsing alternatives.

Several scales were used to measure selected psychological characteristics of students, in order to ascertain the correlation between students' responses on these scales and the four criterion instruments. The psychological characteristics tapped were representative of the four response systems available to the learner and to prospective elementary teachers in this study.

In Chapter I, four questions were raised with respect to the instructional procedures to be used in this study: (1) What will be the effects of the instructional procedures on divergent thinking?; (2) What will be the effects of the instructional procedures on flexible endorsement?; (3) What will be the effects of the instructional procedures on self-reported ease/difficulty of both producing and endorsing alternative actions?; and (4) What effects will be found to be associated with differences among the individuals' psychological systems?

Results with Respect to Divergent Thinking

The effects of the instructional procedures on divergent thinking were measured by the mean number of alternative actions produced by the five groups with respect to the content problem offered in criterion instruments numbered 53 and 214, which presented only the problem-solving situation (see Appendix C). These findings are summarized in Table 6.1 and Table 6.2 below.

TABLE 6.1.--Post-test means and standard deviations for the five groups in producing alternatives on criterion instruments 53 and 214, with no alternatives listed.

Group	Post-Test			
	F.O. 53		F.O. 214	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A1	6.78	2.36	7.48	2.10
A2	7.00	1.90	7.89	2.69
B1	7.19	2.56	7.70	2.71
B2	6.67	2.45	6.96	3.01
C	3.63	1.62	3.63	1.50
Sum*	6.25	2.55	6.73	2.90

*N=135

The data presented in Table 6.1 indicate that the post-test mean score of each of the four treatment groups was higher than that of the control group, and also, that the standard deviation of each treatment group was higher than that of the control group.

An analysis of variance of the post-test difference among means of the five groups, with respect to the number of alternatives produced, showed significance at greater than the .05 level of confidence. These results are summarized in Table 6.2 below.

TABLE 6.2.--Analysis of variance of the post-test difference among means for the five groups in producing alternatives on criterion instruments 53 and 214.

F.O.	Source	S.S.	D.F.	M.S.	F	Signif.
53	Between	236.40	4	59.10	12.137	<0.0005
	Within	633.04	130	4.87		
	Total	869.44	134			
214	Between	338.10	4	84.53	13.939	<0.0005
	Within	788.30	130	6.06		
	Total	1126.40	134			

Results with Respect to Flexible Endorsement

The effects of the instructional procedures on flexible endorsement were measured by the mean number of B and C letter ratings awarded the alternative actions, given either by the prospective elementary teacher or by the researcher on the basis of previous research.

The findings with respect to flexible endorsement of alternative actions suggested by the students themselves to the content problems offered in criterion

instruments numbered 53 and 214, which presented only the problem-solving situation (see Appendix C), are summarized in Table 6.3 below.

The post-test mean and standard deviation of each treatment group was higher than that of the control group with respect to both of these criterion instruments. Also, the mean score on flexible (B and C) endorsement of alternatives by each of the five groups exceeded the mean score on non-flexible (A and D) endorsement of alternatives on both of these criterion instruments.

An analysis of variance of the post-test difference among means of the five groups with respect to flexible (B and C) versus non-flexible (A and D) endorsements of alternatives, showed significance at greater than the .05 level of confidence. These results are summarized in Table 6.4 below.

The findings with respect to flexible endorsement of twelve alternative actions listed by the reseacher, of which three were Academic, three were Psychological, three were Managerial, and three were Social in content, respectively (see Appendix C), are summarized in Table 6.5 below.

The data presented in Table 6.5 indicate that the post-test mean score of the control group was higher (more apt to endorse) with respect to non-flexible

TABLE 6.3.--Post-test means and standard deviations for the five groups on flexible (B and C) versus non-flexible (A and D) endorsements of alternatives produced on criterion instruments 53 and 214, with no alternatives listed.

Group	Post-Test							
	F.O. 53				F.O. 214			
	<u>A and D</u>		<u>B and C</u>		<u>A and D</u>		<u>B and C</u>	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A1	2.56	1.67	4.22	1.87	2.89	1.89	4.59	1.97
A2	2.15	1.83	4.85	1.43	2.00	1.39	5.89	2.33
B1	2.48	1.55	4.70	2.16	2.74	2.30	4.96	2.01
B2	2.89	1.53	3.78	1.87	2.67	1.78	4.30	2.58
C	1.59	0.89	2.04	1.22	1.52	1.05	2.11	1.40
Sum*	2.33	1.57	3.92	2.00	2.36	1.79	4.37	2.41

*N=135

TABLE 6.4.--Analysis of variance of the post-test difference among means for the five groups on flexible (B and C) versus non-flexible (A and D) endorsements of alternatives produced on criterion instruments 53 and 214.

	Source	S.S.	D.F.	M.S.	F	Signif.
F. O. 53 (A and D)	Between	26.00	4	6.50	2.779	0.030
	Within	304.00	130	2.34		
	Total	333.00	134			
F. O. 53 (B and C)	Between	138.77	4	34.69	11.408	<0.0005
	Within	395.33	130	3.04		
	Total	534.10	134			
F. O. 214 (A and D)	Between	36.62	4	9.16	3.047	0.019
	Within	390.59	130	3.00		
	Total	427.21	134			
F. O. 214 (B and C)	Between	211.04	4	52.76	12.023	<0.0005
	Within	570.44	130	4.39		
	Total	781.48	134			

TABLE 6.5.--Post-test means and standard deviations for the five groups on flexible (B and C) versus non-flexible (A and D) endorsements of twelve alternatives listed on criterion instruments 53 and 214.

Group	Post-Test							
	F.O. 53				F.O. 214			
	<u>A and D</u>		<u>B and C</u>		<u>A and D</u>		<u>B and C</u>	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A1	5.74	1.38	6.26	1.38	4.81	1.33	7.19	1.33
A2	5.78	1.55	6.22	1.55	5.19	1.78	6.81	1.78
B1	5.74	1.63	6.26	1.63	4.26	1.81	7.74	1.81
B2	5.93	1.75	6.07	1.75	5.26	1.48	6.74	1.48
C	6.41	1.50	5.59	1.50	5.33	1.71	6.67	1.71
Sum*	5.92	1.56	6.08	1.56	4.97	1.66	7.03	1.66

*N=135

(A and D) endorsements and lower (less apt to endorse) with respect to flexible (B and C) endorsements in comparison to the responses of the four treatment groups on both of these criterion instruments.

An analysis of variance of the post-test difference among means of the five groups with respect to flexible (B and C) versus non-flexible (A and D) endorsement of twelve alternatives listed by the reseacher did not show significance at the .05 level. These results are summarized in Table 6.6 below.

In the following analyses, the academic and managerial alternatives are combined for one set of analyses, and the psychological and social alternatives are combined for another set of analyses. These groupings of the sets of alternatives in the criterion instruments correspond to the essential difference between emphasis in instructional treatment A and instructional treatment B. Thus, it was assumed that these analyses would reveal the major differential effects of the two instructional treatments.

The findings with respect to flexible endorsement of six Academic and Managerial alternatives listed by the researcher on the content problems presented in criterion instruments numbered 53 and 214 (see Appendix C), are summarized in Table 6.7 below.

TABLE 6.6.--Analysis of variance of the post-test difference among means for the five groups on flexible (B and C) versus non-flexible (A and D) endorsements of twelve alternatives listed on criterion instruments 53 and 214.

	Source	S.S.	D.F.	M.S.	F	Signif.
<u>F. O. 53</u>						
A and D versus B and C	Between	8.70	4	2.17	0.885	0.475*
	Within	319.41	130	2.46		
	Total	328.10	134			
<u>F. O. 214</u>						
A and D versus B and C	Between	21.36	4	5.34	2.004	0.98*
	Within	346.52	130	2.67		
	Total	367.88	134			

*Not significant.

TABLE 6.7.--Post-test means and standard deviations for the five groups on flexible (B and C) versus non-flexible (A and D) endorsements of six Academic/Managerial alternatives listed on criterion instruments 53 and 214.

Group	Post-Test							
	F. O. 53: Six A. and M.				F.O. 214: Six A. and M.			
	<u>A and D</u>		<u>B and C</u>		<u>A and D</u>		<u>B and C</u>	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A1	2.78	1.22	3.22	1.22	2.74	1.16	3.26	1.16
A2	2.81	1.18	3.19	1.18	3.19	1.00	2.81	1.00
B1	2.93	1.21	3.07	1.21	2.78	1.25	3.22	1.25
B2	3.00	1.27	3.00	1.27	2.89	0.75	3.11	0.75
C	3.52	0.89	2.48	0.89	2.93	1.04	3.07	1.04
Sum*	3.01	1.17	2.99	1.17	2.90	1.05	3.10	1.05

*N=135

With respect to the six Academic and Managerial alternatives listed on criterion instrument 53, the post-test data presented in Table 6.7 indicate that the mean score of Group C was higher (more apt to endorse) than the scores of each of the four treatment groups in terms of non-flexible (A and D) endorsements, and was lower (less apt to endorse) than the scores of each of the four treatment groups in terms of flexible (B and C) endorsements.

With respect to the six Academic and Managerial alternatives listed on criterion instrument 214, the post-test data presented in Table 6.7 indicate that the mean score of Group A2 was higher (more apt to endorse) than the scores of three of the treatment groups in terms of non-flexible (A and D) endorsements, and was lower (less apt to endorse) than the scores of three of the treatment groups in terms of flexible (B and C) endorsements.

An analysis of variance of the post-test difference among means of the five groups with respect to flexible endorsement of six Academic and Managerial alternatives listed by the researcher on the content problems presented in criterion instruments numbered 53 and 214 (see Appendix C), did not show significance at the .05 level. These results are summarized in Table 6.8 below.

TABLE 6.8.--Analysis of variance of the post-test difference among means for the five groups on flexible (B and C) versus non-flexible (A and D) endorsements of six Academic/Managerial alternatives listed on criterion instruments 53 and 214.

	Source	S.S.	D.F.	M.S.	F	Signif.
<u>F. O. 53:</u>						
Six A. and M. A and D versus B and C	Between	9.66	4	2.41	1.790	0.135*
	Within	175.33	130	1.35		
	Total	184.99	134			
<u>F. O. 214:</u>						
Six A. and M. A and D versus B and C	Between	3.30	4	0.83	0.743	0.564*
	Within	144.44	130	1.11		
	Total	147.75	134			

*Not significant

The findings with respect to flexible endorsement of six Psychological and Social alternatives listed by the researcher to the content problems presented in criterion instruments numbered 53 and 214 (see Appendix C), are summarized in Table 6.9 below.

With respect to the six Psychological and Social alternatives listed on criterion instrument 53, the post-test data presented in Table 6.9 indicate that the mean scores of Groups B1 and C were lower (less apt to endorse) than the scores of each of the other groups in terms of non-flexible (A and D) endorsements, and were higher (more apt to endorse) than the scores of each of the four treatment groups in terms of non-flexible (A and D) endorsements, and was lower (less apt to endorse) than the scores of each of the four treatment groups in terms of flexible (B and C) endorsements.

An analysis of variance of the post-test difference among means of the five groups with respect to flexible endorsement of six Psychological and Social alternatives listed by the researcher to the content problems presented in criterion instruments numbered 53 and 214, did not show significance at the .05 level for the former, but did show significance at the .05 level for the latter. These results are summarized in Table 6.10 below.

TABLE 6.9.--Post-test means and standard deviations for the five groups on flexible (B and C) versus non-flexible (A and D) endorsements of six Psychological/Social alternatives listed on criterion instruments 53 and 214.

Group	Post-Test					
	F.O. 53: Six P. and S.			F.O. 214: Six P. and S.		
	<u>A and D</u>		<u>B and C</u>		<u>A and D</u>	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A1	2.96	0.76	3.04	0.76	2.07	1.04
A2	2.96	0.98	3.04	0.98	2.00	1.11
B1	2.85	0.91	3.15	0.91	1.48	1.01
B2	2.93	0.96	3.07	0.96	2.37	1.28
C	2.85	0.95	3.15	0.95	2.41	1.19
Sum*	2.91	0.90	3.09	0.90	2.07	1.16

*N=135

TABLE 6.10.--Analysis of variance of the post-test difference among means for the five groups on flexible (B and C) versus non-flexible (A and D) endorsements of six Psychological/Social alternatives listed on criterion instruments 53 and 214.

	Source	S.S.	D.F.	M.S.	F	Signif.
<u>F. O. 53:</u>						
Six P. and S. A and D versus B and C	Between	0.34	4	0.09	0.102	0.982*
	Within	108.59	130	0.84		
	Total	108.93	134			
<u>F. O. 214:</u>						
Six P. and S. A and D versus B and C	Between	14.99	4	3.75	2.946	0.023
	Within	165.41	130	1.27		
	Total	180.40	134			

*Not significant

Results with Respect to Ease/Difficulty

The effects of the instructional procedures on ease/difficulty were indicated by the post-test mean score of each of the five groups on the relative ease or difficulty of producing and endorsing alternatives. These measures were taken from the students' self-report of difficulty experienced in rating the alternative actions given either by the student himself or by the researcher. Each student made this response by using a six equal-part "EASY" to "DIFFICULT" scale.

The findings with respect to ease/difficulty of both producing and endorsing alternative actions suggested by the students themselves to the content problems offered in criterion instruments numbered 53 and 214, which presented only the problem-solving situation (see Appendix C), are summarized in Table 6.11 below.

TABLE 6.11.--Post-test means and standard deviations for the five groups: ease/difficulty experienced in producing and endorsing alternatives on criterion instruments 53 and 214, with no alternatives listed.

Group	Post-Test			
	F. O. 53		F.O. 214	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A1	2.04	0.90	2.11	0.93
A2	2.41	1.01	2.63	0.79
B1	2.15	0.86	2.26	0.81
B2	2.07	0.87	2.37	1.04
C	2.19	1.11	2.59	1.12
Sum*	2.17	0.95	2.39	0.95

With respect to students' self-reported ease/difficulty experienced in producing and endorsing alternatives on both criterion instruments, the data presented in Table 6.11 indicate that the mean score of Group A2 was higher (more difficult) than the scores of each of the other groups, and also, that the mean standard deviation of Group C was higher than the mean standard deviation of each of the four treatment groups.

An analysis of variance of the post-test difference among means of the five groups with respect to students' self-reported ease/difficulty experienced in producing and endorsing alternatives on both criterion instruments, did not show significance at the .05 level. These results are summarized in Table 6.12 below.

TABLE 6.12.--Analysis of variance of the post-test difference among means for the five groups: ease/difficulty experienced in producing and endorsing alternatives on criterion instruments 53 and 214, with no alternatives listed.

F.O.	Source	S.S.	D.F.	M.S.	F	Signif.
53	Between	2.27	4	0.57	0.620	0.649*
	Within	118.81	130	0.91		
	Total	121.08	134			
214	Between	5.23	4	1.31	1.453	0.220*
	Within	116.96	130	0.90		
	Total	122.19	134			

*Not significant

The findings with respect to students' self-reported ease/difficulty experienced in endorsing twelve alternative actions listed by the reseacher on criterion instruments 53 and 214 (see Appendix C), are summarized in Table 6.13 below.

TABLE 6.13.--Post-test means and standard deviations for the five groups: ease/difficulty experienced in endorsing twelve alternatives listed on criterion instruments 53 and 214.

Group	F.O. 53:12		F.O. 214:12	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A1	2.22	0.97	2.37	1.15
A2	2.30	0.91	2.56	0.89
B1	2.11	0.75	2.44	0.85
B2	2.41	0.74	2.56	0.85
C	2.19	0.96	2.81	0.83
Sum*	2.24	0.87	2.55	0.92

*N=135

With respect to students' self-reported ease/difficulty experienced in endorsing twelve alternatives listed on criterion instruments 53 and 214, the data presented in Table 6.13 indicate that the mean score of Group B1 was lower (less difficult) than the scores of each of the other groups on the former instrument, and also, that the mean score of Group C was higher (more difficult) than the scores of each of the four treatment groups on the latter instrument.

An analysis of variance of the post-test difference among means of the five groups with respect to students' self-reported ease/difficulty experienced in endorsing twelve alternatives listed by the researcher on both criterion instruments, did not show significance at the .05 level. These results are summarized in Table 6.14 below.

Results with Respect to the Individual Psychological System

Pretest and post-test measures on selected psychological characteristics were made; it was not expected that the instructional experiences (treatments) over this short period of time would result in change in these dimensions. Rather, the value of these measures was assumed to be in the additional understanding of differential consequences of the learners' development as revealed by the criterion instruments.

In Chapter I of this study, the following question was raised: What effects (of the instructional experience) can be associated with differences among the individuals' psychological systems? Several scales were given to the four treatment groups as part of the pretest and post-test in the study (see Appendix D). Before and after the treatment period, Groups A (A1 and replication A2) and Groups B (B1 and replication B2) were given the several scales. The psychological characteristics tapped

TABLE 6.14.--Analysis of variance of the post-test difference among means for the five groups: ease/difficulty experienced in endorsing twelve alternatives listed on criterion instruments 53 and 214.

	Source	S.S.	D.F.	M.S.	F	Signif.
F. 0. 53:12	Between	1.38	4	0.34	0.450	0.772*
	Within	99.56	130	0.77		
	Total	100.93	134			
F. 0. 214:12	Between	3.07	4	0.77	0.903	0.464*
	Within	110.37	130	0.85		
	Total	113.44	134			

*Not significant

by these scales are representative of the four response systems available to each student: (1) a motivational system; (2) a cognitive system; (3) an attitudinal system; and (4) a self system.

In the following section, results are reported with respect to each of the following:

1. The partial correlations¹ found between students' post-test responses on the two criterion instruments, with no alternatives listed, (post-test scores with the influence of the pre-test scores partialled out), and their post-test responses on the several psychological scales;
2. Rank-order correlation coefficients were calculated with respect to pretest and post-test differences for all individuals responding to the criterion instruments based on Focused Observations numbered 53 and 214, with no alternatives listed, and each person's scores on the several psychological scales. The rank orders for individuals in Groups A and in Groups B were treated separately; and

¹The score of each student on the eight criterion variables is adjusted for pre-treatment inequalities in terms of his pretest score which is partialled out of his post-test score. All post-test scores are then relatively equal, i.e., not influenced by the pretest scores. It was expected that this procedure would result in an increase in the number of criterion variables showing significance when correlated with the personality scales used to tap selected aspects of the response systems available to prospective elementary teachers.

3. An analysis of variance of the difference among means of the five groups in terms of their scores on the Midterm Examination and the Final Examination.

The Motivational System

The motivational system was tapped by use of the Intracception scale (Edwards Personal Preference Schedule, Edwards, 1954), and Factor A, Factor I, Factor M, and Factor Q1 (Sixteen Personality Factor Questionnaire, Form A, Cattell, 1962).

No pretest was made of the control group (Group C), and thus it was impossible to claim the apparent change as revealed in the combined treatment groups' pretest-post-test responses on the five scales used to tap the motivational system (see Appendix D).

Tables were presented in Appendix G which show the differences between pretest and post-test scores on certain psychological scales during the treatment period. Most notable were the following: (1) all the simple correlations, obtained between the pretest and post-test mean scores of the combined treatment groups on each of the five selected scales used to tap the motivational system, were significant; (2) the difference between the pretest and post-test mean scores of the combined treatment groups was in a negative direction on Factor Q1 and the Intracception scale, and was in a positive direction on Factor A,

Factor I, and Factor M; and (3) only five out of seventy simple correlations, obtained between the post-test mean scores of the combined treatment groups on fourteen criterion variables (measured by criterion instruments 53 and 214, with twelve alternatives listed by the researcher) and five personality scales used to tap the motivational system, were significant at the .05 level.

Criterion variable codes and the verbal description of each variable, are presented in Figure 6.1 below. The verbal descriptions provided in Figure 6.1 are used to interpret the criterion variables listed in Table 6.15, Table 6.16, Table 6.19, Table 6.20, Table 6.21, and Table 6.22.

Eight criterion variables were measured by the combined (four) treatment groups' pretest and post-test responses on criterion instruments 53 and 214, with no alternatives listed. The influence of the pretest score was partialled out of the post-test score. The findings with respect to eight criterion variables used as predictors of students' responses on five psychological scales used to tap the motivational system, are summarized in Table 6.15 below.

The data presented in Table 6.15 indicate that small increases usually occur in the partial correlation compared to the zero order correlations after the influence of the pretest score was partialled out of the

Variable Code	Verbal Description
POSTAL53:	Post-test--Number of Alternatives Produced to the Content Problem Presented in Focused Observation 53.
PTAL214:	Post-test--Number of Alternatives Produced to the Content Problem Presented in Focused Observation 214.
POSTAD53:	Post-test--Number of <u>A</u> and <u>D</u> Endorsements of Alternatives Noted by the Student Himself on Focused Observation 53.
POSTBC53:	Post-test--Number of <u>B</u> and <u>C</u> Endorsements of Alternatives Noted by the Student Himself on Focused Observation 53.
PTAD214:	Post-test--Number of <u>A</u> and <u>D</u> Endorsements of Alternatives Noted by the Student Himself on Focused Observation 214.
PTBC214:	Post-test--Number of <u>B</u> and <u>C</u> Endorsements of Alternatives Noted by the Student Himself on Focused Observation 214.
PTDIFF53:	Post-test--Ease/Difficulty Experienced in Producing and Endorsing Alternatives on Focused Observation 53.
PTDIF214:	Post-test--Ease/Difficulty Experienced in Producing and Endorsing Alternatives on Focused Observation 214.

FIGURE 6.1

Legend for Eight Criterion Variables Measured by Criterion Instruments 53 and 214, with No Alternatives Listed, and Presented in Table 6.15, Table 6.16, Table 6.19, Table 6.20, Table 6.21 and Table 6.22.

TABLE 6.15.--Zero order correlations and partial correlations for all students in the four treatment groups on eight criterion variables¹ and five psychological scales used to tap the motivational system.

Criterion Variables ²	Zero Order Correlations					Partial Correlations				
	Intra-ception*		Factors*			Intra-ception*		Factors*		
	A	Q1	I	M	Q1	A	I	M	Q1	Q1
POSTAL53	-.077	.186**	-.037	.121	.186**	-.082	-.044	.132	.172**	
PTAL214	.030	.173**	-.008	.030	.173**	-.070	-.024	.013	.197**	
POSTAD53	-.102	.036	-.080	.159	.036	.083	-.087	.153	.025	
POSTBC53	.005	.197**	.025	.009	.197**	-.170**	.024	.032	.190**	
PTAD214	.087	.106	-.009	.028	.106	-.067	-.012	.027	.112	
PTBC214	.106	.113	-.002	.012	.113	.002	-.016	.008	.129	
PTDIFF53	.028	.175**	-.205**	-.048	.175**	-.095	-.175**	-.073	.167**	
PTDIF214	.142	.123	-.077	.055	.123	-.052	-.015	.073	.125	

¹From two criterion instruments on which no alternatives were listed. Scores on pretest and post-test were available.

²Criterion variable codes and the verbal description of each variable, were presented earlier in Figure 6.1.

*N=108

**p < .05

post-test score on each of the criterion variables. However, only one additional (partial) correlation was significant at the .05 level.

Rank-order correlation coefficients were calculated with respect to pretest/post-test differences for all students responding to criterion instruments 53 and 214, with no alternative listed, and each student's pre-test scores on the several psychological scales used to tap the motivational system. The rank orders for individuals in Groups A (A1 and A2) and Groups B (B1 and B2) were treated separately. The findings with respect to five psychological scales used as predictors of students' change on eight criterion variables, are summarized in Table 6.16 below.

The data presented in Table 6.16 indicate that Factor A and Factor I were the only psychological scales showing any significant correlations with differences on any of the eight criterion variables for either Groups A or Groups B. Further, the data indicate that only one scale was significantly correlated (in a positive direction) with change on one criterion variable for Groups A, and that only two scales were significantly correlated (in a negative direction) with change on five criterion variables for Groups B.

TABLE 6.16.--Rank-order correlation coefficients for the combined treatment groups A (A1 and A2) and groups B (B1 and B2): pretest to post-test change on eight criterion variables¹ and pretest scores on five psychological scales used to tap the motivational system.

Pretest to Post-Test Change on Criterion Variables ²	RHO Correlations											
	Intra- ception*		Factor A*		Factor I*		Factor M*		Factor Q1*			
	A	B	A	B	A	B	A	B	A	B	A	B
AL53	.136	-.106	-.063	-.372**	-.065	-.015	-.032	.025	.012	.048		
AL214	-.023	-.012	-.098	-.312**	-.179	.080	-.177	.141	.079	.208		
AD53	.064	-.087	.012	.035	-.096	-.148	.014	.059	.058	-.030		
BC53	.104	-.097	-.065	-.529**	.061	.102	-.101	-.029	-.061	.202		
AD214	-.132	-.189	-.001	-.258**	-.061	.027	.062	-.049	.116	.051		
BC214	.083	.136	-.091	-.082	-.055	.141	-.148	.209	.019	.184		
DIFF53	.190	-.081	.013	-.183	-.083	-.239**	-.101	-.104	.136	-.001		
DIF214	.206	-.104	-.195	.175	.259**	.050	.086	.084	.036	-.060		

¹From two criterion instruments on which no alternatives were listed. Scores on pretest and post-test were available.

²Criterion variable codes and the verbal descriptions of each variable, were presented earlier in Figure 6.1.

**N=108

**p < .05

The Cognitive System

The cognitive system was tapped by the common Midterm Examination and the common Final Examination used in the course. The grades received by the students on these examinations were treated as a fifteen-point continuum: the grade F- is represented as one point and the grade A+ is represented as fifteen points.

The findings with respect to the cognitive system, as tapped by the two common examinations, are summarized in Table 6.17 and Table 6.18 below.

TABLE 6.17.--Means and standard deviations for the five groups on the common Midterm Examination and the common Final Examination.

Group	Midterm		Final	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.
A1	7.81	3.10	8.00	2.80
A2	9.11	3.04	9.04	2.05
B1	7.59	2.99	7.67	2.88
B2	7.55	2.93	7.81	2.27
C	9.85	2.07	10.67	2.45
Sum*	8.39	2.96	8.64	2.72

*N=135

The data presented in Table 6.17 indicate that the mean scores of the control group were higher on both the Midterm Examination and the Final Examination in comparison to the mean scores of each of the four treatment groups.

An analysis of variance of the difference among means of the five groups with respect to both the Mid-term Examination and the Final Examination, show significance at greater than the .05 level of confidence. These results are summarized in Table 6.18 below.

TABLE 6.18.--Analysis of variance of the difference among means for the five groups on the common Midterm Examination and the common Final Examination.

	Source	S.S.	D.F.	M.S.	F	Signif.
Midterm	Between	116.64	4	29.16	3.585	<0.008
	Within	1057.33	130	8.13		
	Total	1173.97	134			
Final	Between	107.17	4	42.54	6.753	<0.0005
	Within	819.04	130	6.30		
	Total	989.21	134			

The Attitudinal System

The attitudinal system was tapped by use of the Self-Orientation, Interaction-Orientation, and Task-Orientation scales (The Orientation Inventory, Bass, 1962), as well as by the vocational values "Relations with Others" (Dipboye and Anderson, 1959) and "Service to Others" (Van Winkle, 1960).

No pretest was made of the control group (Group C), and thus it was impossible to claim the apparent change as revealed in the combined treatment groups' pretest-post-test responses on the three orientation scales and two vocational items used to tap the attitudinal system (see Appendix D).

Tables were presented in Appendix G which show the differences between pretest and post-test scores on certain psychological scales and items during the treatment period. Most notable were the following: (1) all the simple correlations, obtained between the pretest and post-test mean scores of the combined treatment groups on each of the three selected scales and two selected items used to tap the attitudinal system, were significant; (2) the difference between the pretest and post-test mean scores of the combined treatment groups was in a negative direction on the item "Service to Others" and the Task-Orientation scale, and was in a positive direction on the item "Relations with Others" and the Self-Orientation and Interaction-Orientation scales; and (3) only fourteen out of seventy simple correlations, obtained between the post-test mean scores of the combined treatment groups on fourteen criterion variables (measured by criterion instruments 53 and 214, with twelve alternatives listed by the researcher), and three scales and two items used to tap the attitudinal system, were significant at the .05 level.

Eight criterion variables were measured by the combined (four) treatment groups' pretest and post-test responses on criterion instruments 53 and 214, with no alternatives listed. The influence of the pretest score was partialled out of the post-test score. The findings with respect to eight criterion variables used as predictors of students' responses on five psychological scales used to tap the attitudinal system, are summarized in Table 6.19 below.

The data presented in Table 6.19 indicate that seventeen increases and twenty-two decreases occur in the partial correlations compared to the zero order correlations after the influence of the pretest score is partialled out of the post-test score on each of the criterion variables. Also, one less (partial) correlation was significant at the .05 level.

Rank-order correlation coefficients were calculated with respect to pretest/post-test differences for all students responding to criterion instruments 53 and 214, with no alternatives listed, and each students' pretest scores on the three scales and two items used to tap the attitudinal system. The rank orders for individuals in Groups A (A1 and A2) and Groups B (B1 and B2) were treated separately. The findings with respect to three scales and two items used as predictors of students' change on eight criterion variables, are summarized in Table 6.20 below.

TABLE 6.19.--Post-test zero order correlations and partial correlations for all students in the four treatment groups on eight criterion variables¹ and three scales and two values used to tap the attitudinal system.

Criterion Variables ²	Zero Order Correlations				Partial Correlations			
	Orientations [*]		Vocational Values [*]		Orientations [*]		Vocational Values [*]	
	Self-	Inter-action-	Task-	Relations with Others	Self-	Inter-action-	Task-	Relations with Others
POSTAL53	-.129	.056	.060	.035	-.136	.015	.105	.048
PTAL214	-.017	.096	-.071	-.090	-.039	.041	-.003	-.092
POSTAD53	-.097	.064	.026	.001	-.101	.031	.060	.015
POSTBC53	-.073	.013	.051	.041	-.077	-.001	.066	.041
PTAD214	.087	.101	-.164**	-.094	.086	.050	.119	-.113
PTBC214	-.090	.028	.052	-.028	-.114	.034	.067	-.002
PTDIFF53	-.190**	-.007	.168**	-.015	-.179**	-.075	.219**	-.007
PTDIF214	-.252***	.032	.187**	-.056	-.233**	.031	.171**	.009
								.093
								.094
								-.003
								.116
								-.088
								.168**
								.197**
								.070

¹From two criterion instruments on which no alternatives were listed. Scores on pretest and post-test were available.

²Criterion variable codes and the verbal description of each variable, were presented earlier in Figure 6.1.

#N=108 **p < .05 ***p < .01

TABLE 6.20.--Rank-order correlation coefficients for the combined treatment groups A (A1 and A2) and groups B (B1 and B2): pretest to post-test change on eight criterion variables¹ and pretest scores on three scales and two items used to tap the attitudinal system.

Pretest to Post-test Change on Criterion Variables ²	RHO Correlations											
	Orientations ³				Vocational Values ⁴							
	Self-		Interaction-		Task-		Relations with Others		Service to Others			
	A	B	A	B	A	B	A	B	A	B	A	B
AL53												
AL214	-.137	-.034	-.220	-.334**	.343**	.318**	.063	-.156	-.111	.143		
AD53	-.115	-.106	-.226	-.138	.245**	.196	-.008	-.079	.113	-.057		
BC53	-.045	-.027	-.208	-.155	.216	.146	.137	-.033	.015	-.132		
AD214	-.216	-.006	-.100	-.313**	.283**	.293**	-.112	-.142	-.111	.198		
BC214	-.117	.221	-.295**	-.129	.296**	-.074	.087	-.043	-.136	.097		
DIFF53	-.124	-.368**	.040	-.023	.072	.335**	-.060	-.022	.165	-.219		
DIF214	-.042	-.218	-.007	-.031	.046	.259**	-.039	-.142	-.098	.061		
	.140	-.248**	-.002	.007	-.106	.238**	.044	.134	-.047	-.331**		

¹From two criterion instruments on which no alternatives were listed. Scores on pretest and post-test were available.

²Criterion variable codes and the verbal description of each variable, were presented earlier in Figure 6.1.

*N=108 **p < .05

The data presented in Table 6.20 indicate that:

(1) fifteen of the rank-order correlations were significant with respect to either Groups A or Groups B pretest to post-test differences in response on eight criterion variables and their pretest scores on the three scales and two vocational items; (2) differences for Groups A on some of the criterion variables were significantly correlated with only their pretest scores on their Interaction-orientation and Task-orientation scales; and (3) differences for Groups B on some of the criterion variables were significantly correlated with all of the scales and items except the vocational value "Relations with Others."

The Self System

The self system was tapped by three self-concept ratings, using twenty-nine adjectives (drawn from a study reported in The Adjective Check List Manual, Gough and Heilbrun, 1965), rated in terms of the following: "MYSELF," "MY IDEAL SELF," and "MYSELF AS A TEACHER."

No pretest was made of the control group (Group C), and thus it was impossible to claim the apparent change as revealed in the combined treatment groups pretest-post-test responses on the three self-concept ratings used to tap the self system (see Appendix D).

Tables were presented in Appendix G which show the differences between pretest and post-test scores on certain self-concept ratings during the treatment period. Most notable were the following: (1) all the simple correlations, obtained between the pretest and post-test mean scores of the combined treatment groups on each of the three selected self-concept ratings used to tap the self system, were significant; (2) the difference between the pretest and post-test mean scores of the combined treatment groups was in a positive direction on each self-concept rating; (3) there was a reduction in the number of discrepancies obtained between the pretest and post-test mean scores of the combined treatment groups on each of the three self-concept ratings considered in comparison to each other; (4) there was a reduction in the mean number of discrepancies (pretest-pretest versus post-test-post-test) for the combined treatment groups on the three self-concept ratings: this indicated that the self-concept "MYSELF" became more congruent with the self-concepts "MY IDEAL SELF" and "MYSELF AS A TEACHER" on the post-test; and (5) only two out of forty-two simple correlations obtained between the post-test mean scores of the combined treatment groups on fourteen criterion variables (measured by criterion instruments 53 and 214, with twelve

alternatives listed by the researcher), and three self-concept ratings used to tap the self system, were significant at the .05 level.

Eight criterion variables were measured by the combined (four) treatment groups' pretest and post-test responses on criterion instruments 53 and 214, with no alternatives listed. The influence of the pretest score was partialled out of the post-test score. The findings with respect to eight criterion variables used as predictors of the students' responses on three self-concept ratings used to tap the self system, are summarized in Table 6.21 below.

The data presented in Table 6.21 indicate that seven increases and seventeen decreases occur in the partial correlations compared to the zero order correlations after the influence of the pretest score was partialled out of the post-test score on each of the criterion variables.

Rank-order correlation coefficients were calculated with respect to pretest/post-test differences for all students responding to criterion instruments 53 and 214, with no alternatives listed, and each student's pretest scores on the three self-concept ratings used to tap the self system. The rank orders for individuals in Groups A (A1 and A2) and Groups B (B1 and B2) were treated separately. The findings with respect to three

TABLE 6.21.--Post-test zero order correlations and partial correlations for all students in the four treatment groups on eight criterion variables¹ and three self-concept ratings used to tap the self system.

Criterion Variables* ²	Zero Order Correlations				Partial Correlations			
	Self-Concept Ratings*				Self-Concept Ratings*			
	MYSELF	MY IDEAL SELF	MYSELF AS A TEACHER	MYSELF AS MYSELF	MY IDEAL SELF	MYSELF AS MYSELF	MYSELF AS A TEACHER	MYSELF AS A TEACHER
POSTAL53	-.094	.143	.128	-.130	.122	.109		
PTAL214	-.015	.106	.039	-.079	.086	-.000		
POSTAD53	-.255***	.074	.062	-.286***	.065	.049		
POSTBC53	.109	.114	.103	.098	.093	.093		
PTAD214	-.092	.115	.038	-.139	.097	.016		
PTBC214	.058	.029	.014	.046	.028	-.002		
PTDIFF53	-.005	.020	.010	.003	-.029	.045		
PTDIF214	-.038	.009	.086	-.025	.060	-.085		

¹From the criterion instruments on which no alternatives were listed. Scores on pretest and post-test were available.

²Criterion variable codes and the verbal description of each variable, were presented earlier in Figure 6.1.

*N=108 **p < .05 ***p < .01

self-concept ratings used as predictors of students' change on eight criterion variables, are summarized in Table 6.22 below.

The data presented in Table 6.22 indicate that: (1) eight of the rank-order correlation coefficients were significant with respect to either Groups A or Groups B pretest to post-test differences in response on eight criterion variables and their pretest scores on the three self-concept ratings; (2) differences for Groups A on some of the criterion variables were significantly correlated with their pretest scores on the three self-concept ratings; and (3) differences for Groups B on two of the criterion variables were significantly correlated with only the "MYSELF AS A TEACHER" self-concept rating.

TABLE 6.22.--Rank-order correlation coefficients for the combined treatment groups A (A1 and A2) and groups B (B1 and B2): pretest to post-test change on eight criterion variables¹ and pretest scores on three self-concept ratings used to tap the self system.

Pretest to Post-test Change on Criterion Variables* ²	RHO Correlations							
	Self-Concept Ratings							
	MYSELF*		MY IDEAL SELF*		MYSELF AS A TEACHER*			
Groups	A	B	A	B	A	B	A	B
AL53	-.230**	-.038	-.142	-.017	-.117	-.077		
AL214	-.079	.040	-.155	-.039	.002	.064		
AD53	-.241**	-.079	.016	-.009	.094	.024		
BC53	-.120	-.030	-.162	-.028	-.242**	-.243**		
AD214	-.103	-.161	.197	.087	.260**	.217		
BC214	-.104	.225	-.292**	-.200	-.209	-.155		
DIF53	-.140	.090	.021	.167	-.122	.104		
DIF214	-.032	.039	-.017	.102	-.256**	.230**		

¹From two criterion instruments on which no alternatives were listed. Scores on pretest and post-test were available.

²Criterion variable codes and the verbal description of each variable, were presented earlier in Figure 6.1.

*N=108

**p < .05

CHAPTER VII

SUMMARY AND IMPLICATIONS

General Summary of the Study

The Behavioral Model

This descriptive study was designed to investigate the effects of two different instructional procedures upon four groups of prospective elementary teachers. The instructional procedures consist of two methods of instructional use of descriptive materials selected from a behavioral model of the elementary school teacher. The behavioral model consists of 241 verbal descriptions available in the Learning Systems Institute's descriptive study of elementary teaching in the inner city.

The Learning Systems Institute's Mott Study: "Teaching in the Inner City" had two major objectives: (1) to describe the teaching behaviors of practicing elementary teachers who have demonstrated particular aptitude in teaching the culturally disadvantaged child; and (2) to identify teaching behaviors "peculiar" to competent elementary teaching in selected inner city schools in Detroit, Flint, and Grand Rapids, Michigan. Descriptions of teaching behaviors were obtained by

use of a specially adapted form of the "Focused Observation," an instrument for observing, recording, and describing small units of teaching behavior.

Two selected panels of competent elementary teachers (fourteen local teachers formed Referent Group A, and fourteen intern consultants formed Referent Group B) screened and judged 277 behavior descriptions with respect to their representativeness and appropriateness of inner city teaching. Consensus by twelve members of each referent group produced Model A and Model B, respectively. Comparison of Model A (230 descriptions) and Model B (189 descriptions) indicated that 52 behaviors were unique to Model A, 11 behaviors were unique to Model B, and 178 behaviors were common to both Model A and to Model B.

Selection of Focused Observations for Use in the Study

During the Winter Quarter, 1966-1967, instructors A and B selected one Focused Observation from each of the classification categories of teacher behavior (see Appendix F). Various criteria and selection procedures resulted in the selection of forty-five Focused Observations that were used as the basis for the instructional procedures in the study (see Appendix A).

Development of the Four Criterion Instruments

The content problems in two Focused Observations were chosen by instructors A and B as the most appropriate and representative for use in the study as criterion instruments: (1) Focused Observations numbered 53 and 214, with no alternatives listed; and (2) Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher on the basis of previous research (see Appendix C).

The Personality Scales

Descriptive data were provided in Chapter III from the several scales used to measure certain psychological characteristics representative of the response systems available to each prospective elementary teacher: (1) a motivational system; (2) a cognitive system; (3) an attitudinal system; and (4) a self system (see Chapter III and Appendix D).

The Instructors

The three instructors involved in this study were enrolled in a college teaching internship in educational psychology, and were employed as graduate assistants in the School of Teacher Education at Michigan State University during the 1966-1967 school year.

The Population and Sample

The population consisted of students enrolled in a pre-student-teaching course, Individual and the School, at Michigan State University during the Spring Quarter, 1967. The sample consisted of 147 students assigned to five teaching sections, and was composed of prospective elementary teachers who received a final grade in the course.

The Statistical Sample

The data collected on twelve students were eliminated from the statistical analyses by use of a table of random numbers. This procedure resulted in a statistical sample of 135 students, and in five groups (Groups A1, A2, B1, B2, and C) of twenty-seven students each.

Biases Among the Five Groups

Use of the chi-square test of independence demonstrated that no biases existed among the five groups with respect to the selected demographic factors. Use of analysis of variance of the difference among means demonstrated that no biases existed among the five groups with respect to either their entry to college scores on the College Qualification Tests or their grade-point averages earned to date at Michigan State University.

In addition, use of analysis of variance of the difference among means of the four treatment groups

(Groups A and Groups B) demonstrated that no biases existed among the groups on the pretest with respect to the following: (1) divergent thinking; (2) flexible endorsement; (3) ease/difficulty of producing and endorsing alternatives; and (4) certain personality characteristics (with one exception).

Grouping and Administrative Procedures

The grouping and administrative procedures provided for an immediate replication of instructional treatments on a second group: Groups A (A1 and replication A2) under instructor A, received instructional treatment A; Groups B (B1 and replication B2) under instructor B, received instructional treatment B. The four treatment groups received experience in problem-solving and/or decision-making using selected Focused Observations. Group C, under instructor C, was used as a control group, and received no experience in problem-solving and/or decision-making using selected Focused Observations.

Groups A (A1 and Replication A2)

Students in Groups A were assigned to one of five small-groups of six students each, and were reassigned to new small-groups after every two treatment sessions. Each small-group consisted of two students who had scored in the "High" one-third, two students who had

scored in the "Middle" one-third, and two students who had scored in the "Low" one-third, with respect to their pretest scores on the Intraception scale.

While in their respective small-groups the students discussed possible alternative actions, various consequences, a rationale, and supporting generalizations for each of the two or three Focused Observation worksheets used during that session. The time remaining during each session was devoted to large-group discussion of the worksheets, and this was immediately followed by analysis of the model solution.

Groups B (B1 and Repliation B2)

Students in Groups B were grouped during each session on a highly flexible basis: the small-groups ranged from fourteen two-person groups to two fifteen-person groups. The students discussed one or two Focused Observation worksheets during each session, and one or two worksheets were used as a homework assignment.

Term Project

Five Focused Observation worksheets, presenting only the problem-solving situation, were used as the basis for a written term project. Each student anonymously evaluated the projects submitted by two anonymous fellow students, and finally, evaluated his own project. The criteria and evaluation sheets used

in these evaluations were presented, and the various procedures used with respect to the project were discussed. Each student in Groups A and B thereby gained additional problem-solving experience on an individual basis.

Pretest and Post-test Data:
Four Groups

Use of the instruments described earlier in Chapter III, generated pretest and post-test data on all students in Groups A and B with respect to each of the following: (1) Focused Observations numbered 53 and 214, with no alternatives listed; and (2) the several scales used to measure certain psychological characteristics representative of the response systems available to the students (see Chapter III and Appendix D).

A comparison of the responses of the four treatment groups with respect to these instruments was made to investigate the effects of the instructional procedures on each of the following: (1) divergent thinking; (2) flexible endorsement; (3) ease/difficulty of producing and endorsing alternatives. The responses of the four treatment groups on these criterion instruments (post-test score minus the influence of the pretest score) were then correlated with their responses on the several psychological scales.

Post-test Data: Five Groups

Following the treatment period, Groups A, B, and C, completed the criterion instruments designated as: (1) Focused Observations numbered 53 and 214, with no alternatives listed; and (2) Focused Observations numbered 53 and 214, with twelve alternatives listed by the researcher (see Appendix C). A comparison of the responses of the five groups with respect to these criterion instruments was made to investigate the effects of the instructional procedures on each of the following: (1) divergent thinking; (2) flexible endorsement; and (3) ease/difficulty of producing and endorsing alternative actions.

Complete Data

The administrative and data collection procedures described in Chapter IV resulted in complete data being obtained from all students in Groups A, B, and C, with respect to all criterion instruments and personality scales used in the study.

Specific Design of the Study

The study was specifically designed: (1) to describe, via daily diaries recorded by instructors A and B, two methods of instructional use of Focused Observations selected from the behavioral model of the elementary school teacher (see Chapter V); (2) to

investigate the effects of the instructional procedures on students' capacities to solve instructional problems; and (3) to ascertain the correlation between students' responses on several psychological scales and their responses on four criterion instruments.

A Summary of the Findings

Results with Respect to Divergent Thinking

The effects of the instructional procedures on divergent thinking were measured by the mean number of alternative actions produced on the post-test with respect to the content problem offered in criterion instruments numbered 53 and 214, which presented only the problem-solving situation (see Appendix C).

An analysis of variance of the post-test difference among means of the five groups showed significance at greater than the .05 level of confidence. This confirms that these prospective elementary teachers were taught the following: (1) to increase their capacity to solve instructional problems of the sort drawn from a behavioral model of the master elementary teacher; and (2) to produce many alternative actions that a teacher could take as possible solutions to actual instructional problems faced by inner city teachers.

Results with Respect to Flexible Endorsement

The effects of the instructional procedures on flexible endorsement were measured by the mean number of B and C letter ratings awarded the alternative actions, given either by the student himself or by the researcher on the basis of previous research (see Appendix C).

An analysis of variance of the post-test difference among means of the five groups showed significance at greater than the .05 level of confidence with respect to flexible endorsement of alternatives generated and/or proposed by the students themselves. This confirms that these prospective elementary teachers were taught the following: (1) to increase their capacity to be flexible in solving instructional problems of the sort drawn from a behavioral model of the master elementary teacher; and (2) to increase their flexibility in endorsing alternatives suggested by themselves to actions that a teacher could take as possible solutions to instructional problems faced by inner city teachers.

An analysis of variance of the post-test difference among means of the five groups did not show significance at the .05 level of confidence with respect to flexible endorsement of twelve alternatives listed by the researcher on criterion instruments numbered 53 and 21⁴. This confirms that these prospective elementary teachers

were not taught to increase their flexibility in endorsing alternatives listed by the researcher to actions that a teacher could take as possible solutions to instructional problems faced by inner city teachers.

An analysis of variance of the post-test difference among means of the five groups did not show significance at the .05 level of confidence with respect to flexible endorsement of six Academic and Managerial alternatives listed by the researcher to the content problems presented in criterion instruments numbered 53 and 214. This confirms that these prospective elementary teachers in either Groups A or Groups B were not taught to increase their flexibility in endorsing Academic and Managerial alternatives listed by the researcher to actions that a teacher could take as possible solutions to instructional problems faced by inner city teachers.

An analysis of variance of the post-test difference among means of the five groups did show significance at the .05 level of confidence with respect to flexible endorsement of six Psychological and Social alternatives listed by the researcher to the content problem presented on only criterion instrument numbered 214. This confirms that these prospective elementary teachers in either Groups A or Groups B were taught, in part, to increase their flexibility in endorsing Psychological and Social alternatives listed by the researcher to actions that

a teacher could take as possible solutions to instructional problems faced by inner city teachers.

Results with Respect to Ease/
Difficulty of Producing and
Endorsing Alternatives

The effects of the instructional procedures on ease/difficulty were indicated by the post-test mean score of each of the five groups on the relative ease or difficulty of producing and endorsing alternatives. These measures were taken from the students' self-report of difficulty experienced in rating the alternative actions given either by the student himself or by the researcher. Each student made this decision by using a six equal-part "EASY" to "DIFFICULT" scale.

An analysis of variance of the post-test difference among means of the five groups did not show significance at the .05 level of confidence with respect to relative ease/difficulty of producing and endorsing alternatives given either by the student himself or by the researcher. This confirms that prospective elementary teachers were not taught to experience more or less difficulty in rating alternative actions given either by the students themselves or by the researcher.

Results with Respect to the
Effects That Can be Found
to be Associated with
Differences Among the
Individuals' Psycho-
logical Systems

The Motivational System

The motivational system was tapped by use of the Intracception scale (Edwards Personal Preference Schedule, Edwards, 1954), and Factor A, Factor I, Factor M, and Factor Q1 (Sixteen Personality Factor Questionnaire, Form A, Cattell, 1962).

Findings with respect to students' (Groups A and Groups B combined) pretest/post-test responses (the influence of the pretest score is partialled out of the post-test score) on eight criterion variables used as predictors of students' post-test responses on the five psychological scales are as follows:

1. the number of alternative actions generated by the students on both of the criterion instruments, with no alternatives listed, is positively correlated with only Factor Q1;
 2. the number of flexible (B and C) endorsements of alternative actions listed by the students themselves on only criterion instrument numbered 53, with no alternatives listed, is positively correlated with Factor Q1 and negatively correlated with Factor A;
- and

3. the ease/difficulty experienced (self-reported by the students) in producing and endorsing alternative actions on criterion instrument numbered 53, with no alternatives listed, is positively correlated with Factor Q1 and negatively correlated with Factor I. These results would seem to indicate that the eight criterion variables are only, and then partially, useful in predicting students' responses on Factor Q1: divergent thinking tends to be associated with persons who are well informed and more inclined to experiment with problem-solving situations.

Findings with respect to students' (Groups A and Groups B were treated separately) pretest/post-test change in responses (Spearman Rank-Order Correlation Coefficients) on eight criterion variables used as predictors of students' pretest responses on the five psychological scales are as follows:

1. the number of alternative actions generated by the students on both of the criterion instruments, with no alternatives listed, is negatively correlated with only the responses of Groups B on Factor A;
2. the number of flexible (B and C) endorsements of alternatives listed by the students

themselves on criterion instrument 53, and the number of non-flexible (A and D) endorsements of alternatives listed by the students themselves on criterion instrument 21⁴, were negatively correlated with only the responses of Groups B on Factor A; and

3. the other significant correlations obtained are not interpretable. These results would seem to indicate that the eight criterion variables are only, and then partially, useful in predicting only the responses of Groups B on Factor A: divergent thinking and flexible endorsement (in part) tend to be negatively associated with persons who are "warm, sociable" and who do enter teaching.

The Cognitive System

The cognitive system was tapped by the common Mid-term Examination and the common Final Examination used in the course.

An analysis of variance of the difference among means of the five groups with respect to both of these examinations showed significance at greater than the .05 level of confidence. This confirms that prospective elementary teachers assigned to the control group, Group C, did significantly better than the instructional

treatment groups (Groups A and Groups B), on both of the common examinations given in the course.

The Attitudinal System

The attitudinal system was tapped by use of the Self-Orientation, Interaction-Orientation and Task-Orientation scales (The Orientation Inventory, Bass, 1962), as well as by two vocational values "Relations With Others" (Dipboye and Anderson, 1959) and "Service to Others" (Van Winkle, 1960).

Findings with respect to students' (Groups A and Groups B combined) pretest/post-test responses (the influence of the pretest score is partialled out of the post-test score) on eight criterion variables used as predictors of students' post-test responses on three scales and two values are as follows:

1. the number of alternatives generated by the students on either of the criterion instruments, is not correlated with any of the the scales or values;
2. the number of flexible (B and C) endorsements of alternatives listed by the students themselves on only criterion instrument numbered 214 is positively correlated with the vocational value "Service to Others;" and
3. the ease/difficulty experienced (self-reported by the students) in producing and

endorsing alternative actions on both criterion instruments, with no alternatives listed, is negatively correlated with Self-Orientation and positively correlated with Task-Orientation.

These results would seem to indicate that the eight criterion variables are only useful in predicting students' responses on the Self-Orientation and Task-Orientation scales: ease/difficulty of producing and endorsing alternatives tends to be associated with persons who are less concerned with themselves and more concerned with maintaining harmonious relationships in group activities.

Findings with respect to students' (Groups A and Groups B were treated separately) pretest/post-test change in responses (Spearman Rank-Order Correlation Coefficients) on eight criterion variables used as predictors of students' pretest responses on the three scales and two values are as follows:

1. the number of alternative actions generated by the students on both criterion instruments is positively correlated with the responses of only Groups A on Task-Orientation;
2. the number of flexible (B and C) endorsements of alternatives listed by the students themselves on criterion instrument numbered 53, was positively correlated with the responses

of both Groups A and Groups B on the Task-Orientation scale; and

3. the ease/difficulty of producing and endorsing alternatives on both criterion instruments was positively correlated with the responses of only Groups B on the Task-Orientation scale.

These results would seem to indicate that the eight criterion variables are only, and then partially, useful in predicting the responses of all students on the Task-Orientation scale: divergent thinking tends to be associated with persons (Groups A) who are concerned with solving problems; ease/difficulty of producing and endorsing alternatives tends to be associated with persons (Groups B) who also are concerned with solving problems.

The Self System

The self system was tapped by three self-concept ratings, using twenty-nine adjectives (drawn from a study reported in The Adjective Check List Manual, Gough and Heilbrun, 1965), rated in terms of the following:

"MYSELF," "MY IDEAL SELF," and "MYSELF AS A TEACHER."

The finding with respect to students' (Groups A and Groups B combined) pretest/post-test responses (the influence of the pretest score is partialled out of the post-test score) on eight criterion variables used as

predictors of students' post-test responses on three self-concept ratings is as follows:

1. the number of non-flexible (A and D) endorsements of alternative actions produced by the students themselves on only criterion instrument numbered 53, with no alternatives listed, is positively correlated with the self-concept rating "MYSELF."

This result would seem to indicate that only one criterion variable is useful in predicting students' responses on the self-concept rating "MYSELF": non-flexible endorsement tends to be partially associated with one's picture of one's real self.

Findings with respect to students' (Groups A and Groups B were treated separately) pretest/post-test change in responses (Spearman Rank-Order Correlation Coefficients) on eight criterion variables used as predictors of students' pretest responses on three self-concept ratings are as follows:

1. the number of flexible (B and C) endorsements of alternatives listed by the students themselves on only criterion instrument numbered 53, with no alternatives listed, was negatively correlated with the responses of both Groups A and Groups B when rating the concept "MYSELF AS A TEACHER;" and

2. six other significant correlations obtained are not interpretable.

These results would seem to indicate that only one criterion variable is useful in predicting students' responses when rating themselves on the concept "MY-SELF AS A TEACHER:" flexible endorsement (in part) tends to be associated with a student's picture of himself (ideal self) as a future classroom teacher.

The Implications of the Study to the Pre-Service Education of Prospective Elementary Teachers

Implications with Respect to Prospective Teachers

The instructional use of descriptive materials selected from the Mott Study: "Teaching in the Inner City" does result in an increased capacity of prospective elementary teachers in terms of the following:

1. to solve instructional problems similar to those faced by inner city teachers;
2. to think divergently, thereby reducing rigidity in problem-solving and/or decision-making;
3. to be more flexible in endorsing alternative actions that an elementary teacher could take in solving instructional problems;
4. to focus on the probable consequences of their actions with respect to their impact

upon the group and each individual in the classroom;

5. to learn a method of problem-solving and/or decision-making that is generalizable to other important areas of life;
6. to be more open to change, thereby becoming more able to cope with continually changing and diverse conditions in life;
7. to be more sensitive to the psychological needs of all students in a classroom;
8. to increase their skills in interpersonal relations both in and out of the classroom;
9. to create and maintain a classroom social atmosphere conducive to the psychological growth of each individual;
10. to gain in self-awareness and self-insight thereby perceiving the impact of their own "self" upon other persons; and
11. to become more aware of inter- and intra-individual differences in the classroom, thereby helping them to foster the social value of the essential dignity and worth of each individual.

Implications with Respect
to the Pre-Service Pro-
gram of Study

The instructional use of descriptive materials selected from the behavioral model of the master elementary teacher does have several implications for the pre-service program of study taken by prospective teachers:

1. the Individual and the School course could become a series of realistic problem-solving and/or decision-making experiences with respect to content problems drawn from the behavioral model;
2. the course could provide a prospective teacher with an actual classroom model with which he can compare and evaluate his own modus operandus;
3. the course could provide students with concrete descriptive illustrations of those problem situations that are representative of the essential content (principles) of educational psychology;
4. the instructional treatments A and B resulted in no significant differences among the treatment groups, thereby indicating that both methods of using selected content problems drawn from the behavioral model are equally

effective with respect to gain on the criterion variables;

5. the instructional use of the behavioral model indicates that it may help fill the behavioral outcomes/products cell of Guilford's "Structure-of-Intellect" model of intelligence; and
6. use of descriptive behavioral models is a powerful procedure that may help bridge the apparent gap between educational theory/research and actual classroom application/practice.

The Implications of the Study to
Teaching in Inner City School
Environments

Implications with Respect to
Teachers as Individuals

The instructional use of descriptive materials selected from the Mott Study: "Teaching in the Inner City" does have several implications for teachers with respect to their individual psychological systems. It may help to produce teachers who:

1. possess an effective tool for organizing classroom opportunities;
2. possess an increased potential to change their attitudes toward students who are culturally disadvantaged;

3. possess an increased sensitivity to the daily personal development of each individual regardless of the student's value system or cultural background;
4. prepare their students to assume adult responsibility, i.e., teach their students a generalizable method of solving problems in and out of the classroom;
5. create a classroom social atmosphere that is conducive to maximum transfer of training;
6. are flexible in coping with accidental contingencies in the classroom;
7. are not compulsive "slaves" to administrative rules and regulations;
8. feel less need to be over-controlling (managing/disciplining) in the classroom;
9. are willing to use student leaders in managing the classroom;
10. insist upon getting students to do things, in the Dewey/Gagne tradition; and
11. provide sound behavioral models for student identification.

Implications with Respect to
Administrators and the
Organization of the
Curriculum

The instructional use of descriptive materials selected from the behavioral model of the master

elementary teacher does have several implications for administrators. It may help to provide administrators who:

1. focus upon problem-solving and/or decision-making as a generalizable method of solving educational problems;
2. organize educational opportunities/activities in such a way that it is possible for both teachers and students to develop their capabilities of rational inquiry;
3. aid teachers and students to flexibly cope with unpredictable life problems in and out of the classroom; and
4. are less concerned about classroom management and academic content, and more concerned with the social atmosphere created in each classroom and with the psychological needs of teachers and children.

The Implications of the Study to Future Innovators and Further Research

Particular attention in the study was given to specifying the nature of the instructional treatments in order that they may be replicated on other populations, and in order that other researchers may know to what variables the results may be attributed. In Chapter I it was noted: "As a case-study type of investigation,

this study may provide the data base required for the generation of possible predictive hypotheses in future research."

Students located in groups similar to Groups A and Groups B in this study, could be pooled and then partitioned into "High," "Middle," and "Low" one-thirds with respect to their pretest responses on each of the psychological scales. Then the "High" and "Low" one-thirds could be compared with respect to their responses on similar or different criterion (growth) variables.

It seems logical to predict that the "High" scorers will demonstrate greater mean gain/growth on the criterion variables when compared to the "Low" scorers on each of the following psychological scales: (1) Intraception, (2) Factor A, (3) Factor I, (4) Interaction-Orientation, (5) Task-Orientation, and the self-concept rating of "MYSELF."

Also, it may be of interest to develop predictive hypotheses with respect to the amount of gain/growth indicated by the students' responses on criterion variables (similar to, or different from, those used in this study) as a function of the students' gain or loss (pretest to post-test) on certain psychological scales. It seems logical to predict that students who gain/grow more on their need for Intraception, on Factor A, and on Factor I, will also gain/grow more with respect to the criterion variables.

The findings also suggest the possibility of selecting and grouping (for instructional purposes) students who respond on the pretest in different ways, and thus create various kinds of small-group learning situations and/or social atmospheres for one another. Perhaps optimum growth/change occurs via personal confrontation with the different personality characteristics and self-concepts of other students.

Small-groups could be composed of various combinations of students as follows:

1. students who all had scored either "High," or "Middle," or "Low" on their (pretest) self-concept rating of "MYSELF;" and
2. two students who had scored "High," two students who had scored "Middle," and two students who had scored "Low" on their (pretest) self-concept rating of "MYSELF."

The same type of procedure could be used for grouping students on the basis of their pretest responses either on the psychological scales used in this study or on different instruments.

Small-groups could be composed of "High," "Middle," and "Low" person-oriented students and it could be determined whether or not the "High" oriented students are able to move the other group members toward greater gain/growth with respect to the Interaction-Orientation scale used on a post-test.

Also, does a small-group composed entirely of individuals who share each other's orientations achieve more or less gain/growth on criterion variables similar to, or different from, those used in this study? Do task-oriented small-group members achieve higher scores on achievement tests when compared to either self-oriented or person-oriented small-group members?

Finally, the daily diaries recorded by both instructors A and B (see Chapter V) may suggest to future innovators various possibilities for using different content problems and types of instructional treatments. Also, different content problems from the behavioral model could be used in order to develop similar or different criterion instruments. Perhaps in this way, their research results would not merely be simple artifacts of the specific criterion measures used.

Innovations in pre-service education of teachers, no matter how radical, are not likely to seriously alter their personality characteristics for several reasons: (1) personality change requires time, much more time than thirteen treatment sessions over a ten-week period; (2) students must receive immediate positive reinforcement in the classroom for adopting behaviors supported by the instructional procedure(s) employed; and (3) students must be able to perceive the immediate usefulness and transfer value of that which is taught.

A long-term follow-through of the students involved in this study would be desirable in order to ascertain the following:

1. the delayed and/or superficial effects of both instructional treatments used in this study;
2. the persistence of the divergent thinking and flexible endorsement growth variables used in this study; and
3. the percentage and the persistence of the students in this study who later do enter into teaching in inner city school environments.

In conclusion, this researcher feels that the areas of problem-solving and decision-making, and the personality characteristics of prospective elementary teachers, require much further exploration. Research into these areas can be of value both in measuring the effectiveness of different and better instructional designs, and in providing clues for new and more appropriate methods of training prospective elementary teachers.

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APPENDICES

APPENDIX A

FORTY-FIVE COMPLETE MODEL

FOCUSED OBSERVATION SHEETS

(Drawn from the behavioral model of the
elementary school teacher: "Teaching in the
Inner City")

Planning for All Learners

Situation:

The teacher explains to the class that the play they will be reading has fewer characters than there are members in the class. She says that following the reading of the story, the group may dramatize the play.

Action:

The teacher suggests to the group that, while they are reading the play, they think of additional characters which could be added so that each child might have a part.

Consequences:

The children seem eager to begin reading the play and to plan its dramatization.

Rationale:

The teacher knows that all children enjoy taking part in a group activity such as a play. Her past experience tells her that all the children must be included in the play activity in order that they all feel a sense of belonging and importance. She also realizes that there are some children in the group who have the imaginative ability to create a cast and a play for the class. By devising this play dramatization, the teacher is including all the children and making an opportunity for creative expression.

Generalization:

It is important to plan activities that will meet the various needs of all the children in the group.

Underlying Hypothesis:

Planning With the Learner for Art Activities

Situation:

It is nearly time for a class of third grade children to be dismissed for the morning. The teacher tells them that the art teacher will be coming in the afternoon and that their other materials should be put away.

Action:

She reminds the children to bring materials from home for a collage which will be made during the art period.

Consequences:

The children appear pleased with the reminder. A short discussion of suitable materials for a collage follows, and these items are listed on the board.

Rationale:

Reminding the children of the art teacher's visit provides an incentive for cleaning up the room and gives them the opportunity to discuss the activity beforehand. The teacher knows that listing materials for the collage before the children go home for lunch helps them remember to bring these items back to school. She also believes that children should be included in the planning and preparation for a learning experience.

Generalization:

The learning process is facilitated when children are included in planning and preparation for learning experiences.

Underlying Hypothesis:

Providing a Rest and Relaxation Break

Situation:

After going over a spelling lesson orally with the teacher, the children begin a similar exercise in their notebooks while the teacher circulates around the room checking individual progress. The children have reading and spelling difficulties, and the work is progressing slowly.

Action:

After five or six minutes, the teacher stops the children's work and has them take a break, telling them they may go to the restroom or visit with their friends for awhile.

Consequences:

The children stretch, relax, talk with their friends; some leave the room. When class is resumed, they settle to their work and seem to be able to do the exercise more easily.

Rationale:

The teacher sees that this spelling lesson is difficult for many of her pupils. She knows that all children need to experience a measure of success in order to learn. She also knows that her slow learners need more time and more frequent intervals of relaxation, especially when they are experiencing frustration. She believes that providing pleasant breaks often for these children during the school day will make school and learning more enjoyable and profitable.

Generalization:

A brief rest or change of activity encourages positive behavior and allows children to do better work.

Underlying Hypothesis:

Modifying Plans to Meet Unusual Situations

Situation:

Several sixth grade classes are cooperating in the preparation of a spring program. While some of the children are rehearsing with two of the teachers, the remaining children are in one classroom. The room contains a diverse group of children whose reading abilities encompass a minimum of a five-grade span. Rather than divide the children into ability groups, the teacher has them all read together.

Action:

The teacher lets the group choose a story from several she has selected out of the basal readers.

Consequences:

The children read the story with great enthusiasm.

Rationale:

Since some of the children are from other homerooms, the teacher does not know the strengths and weaknesses of each child. She therefore has no way of grouping the children and feels it would be to the advantage of everyone if the children all read the same story. Since the children in the program are doing something "special," she feels that the remaining students will feel less "left-out" if they too are allowed to have a change of routine and select a story they particularly enjoy reading and hearing. She therefore chooses several not-too-difficult stories that she knows are especially popular with children in hopes of making this arrangement more enjoyable and a little different than the usual reading class.

Generalization:

A teacher should be flexible and take into account the needs and desires of students.

Underlying Hypothesis:

Providing for Group Participation

Situation:

The teacher is working with a slow reading group. She has taken some sentences from a story that the children have read, and asks the pupils to arrange them in a logical order. The children appear to have difficulty understanding the assignment.

Action:

The teacher has them do the assignment as a group, rather than independently.

Consequences:

The children work the assignment together. They seem to "catch on" after doing several and appear pleased with their progress.

Rationale:

The teacher knows that putting sentences in sequential order is a difficult task for slow readers. She feels that when these children face a "too" difficult task they often become inhibited with frustration. Peer assistance in this kind of situation can be an effective teaching method, so she suggests that the children work together with some direction from her. By being able to complete the work, the teacher believes they will gain personal satisfaction and learning will be increased.

Generalization:

Working together can be a valuable learning experience for children when they have trouble solving the problem independently.

Underlying Hypothesis:

Developing Self-reliance

Situation:

It is near the end of the morning session and some of the students have to leave shortly for their safety posts. The teacher is planning to read a story about Paul Bunyan for the remaining part of the morning.

Action:

Before she begins to read, she tells those students who have to leave for their safety posts that they may do so while she is reading. They are to watch the clock and leave quietly at the appropriate time.

Consequences:

The children involved leave the room for their safety patrol posts without interrupting the reading.

Rationale:

The teacher believes that if she is interrupted by the safety patrols in the midst of the reading the interest of the class in the story may be destroyed. This teacher believes that by giving the safety patrols the responsibility of watching the clock and getting to their posts on their own she will strengthen their self-reliance.

Generalization:

Self-reliance is developed by providing the learner with responsibilities.

Underlying Hypothesis:

Shifting Activities to Motivate the Learner

Situation:

The class is working on a phonics lesson in which word building is the activity, i.e., all, ball, call, etc. When a new word is listed on the board, the teacher calls on one of the children to write a rhyming word beside it. As the activity progresses the teacher notices that the attention of some of the students is beginning to wander.

Action:

The teacher has the whole class work together on the last word.

Consequences:

The group is reunited and all attention is directed towards the lesson.

Rationale:

The teacher notices that the class is beginning to tire of the activity. She believes that a restless class is a signal for her to change the procedure. In order to avoid possible disciplinary problems or to avoid losing the whole class' interest, she changes the approach and terminates the activity.

Generalization:

Apparent disinterest on the part of the learners is a signal for the teacher to change her approach.

Underlying Hypothesis:

Awareness of Classroom Atmosphere

Situation:

The teacher and her class have just returned from a musical program in the auditorium. Ten minutes remain before the day's dismissal.

Action:

The teacher comments on the artist's fine musical performance and the good behavior of her class in the auditorium. She then announces that for the remainder of the day, the children may study or pursue their own interests.

Consequences:

The children appear pleased with the teacher's comments. Some of the children talk with their neighbors and others busy themselves at their desks.

Rationale:

The teacher senses that the children were highly impressed with the music program. Knowing they are excited and happy, she realizes teaching a lesson in this short time would be anticlimatic. She believes also that children should periodically be provided free time so that they may learn to use their time wisely.

Generalization:

The time element and emotional atmosphere in the classroom should be used as clues for choosing activities.

Underlying Hypothesis:

Sharing Materials

Situation:

The art teacher is in the room. The classroom teacher assists by passing out materials, and encouraging children to share the cloth, beads, rice, etc., which they have brought from home.

Action:

The room teacher arranges the children into working groups to increase the selection of materials that each child will have in making his collage.

Consequences:

Everyone participates in the art activity, since there are plenty of materials on hand.

Rationale:

The teacher sees that some of the children do not have the variety of materials needed for making a good collage, while other children have an abundance of the various objects. The teacher feels that sharing materials, as well as ideas, is an integral part of creating a happy classroom atmosphere. It will prevent feelings of frustration from the lack of materials, as well as possible management problems, e.g., "borrowing" someone else's objects.

Generalization:

Sharing available materials with all students increases learning and decreases management problems.

Underlying Hypothesis:

Maintaining an Atmosphere of Learning

Situation:

A teacher is introducing a new unit on Africa to her class by showing colored pictures of the country and discussing the pictures with the students. As she talks one of the pictures falls to the floor with a great crash.

Action:

The teacher ignores the picture which has fallen and continues to discuss the illustration she is using.

Consequences:

The attention of the class strays briefly to the fallen picture, but as the teacher continues her discussion, the children's attention is returned to the picture being shown.

Rationale:

The teacher sees that her class has been disturbed by the fallen picture. She feels that further interruption of the lesson, such as replacing or commenting on the fallen picture, would further distract the students from the lesson. By ignoring the incident the teacher feels that the atmosphere of learning and pupil interest can be maintained.

Generalization:

The attitude of the teacher toward a disruptive incident often determines that of the learners.

Underlying Hypothesis:

Motivating by Rewarding

Situation:

A kindergarten class is busy cleaning up the room for the day. The teacher has appointed two children "captains" and placed them in charge of the clean-up activities. At the conclusion of the clean-up activity, discussion and evaluation of the pupils' roles take place.

Action:

The teacher lets the captains choose two children to honor for having done the best clean-up job.

Consequences:

A boy and girl are chosen by the captains and awarded paper sunflowers for their efforts.

Rationale:

The teacher knows that few children really enjoy "cleaning-up." Yet she knows that it is important that children learn to clean up after themselves following an activity. She feels that a special incentive, some form of recognition or reward, can help encourage "helping" behaviors. She therefore selects a technique that allows for peer recognition and teacher approval. She believes that the children who make a special effort will have their behavior reinforced and the others will be encouraged to do better next time.

Generalization:

Behaviors which are rewarded are more likely to recur.

Underlying Hypothesis:

Stimulating Pupil Response

Situation:

It is the science period in a kindergarten class. The children and the teacher are discussing some freshly cut branches from trees and shrubs. One of the slower children is not participating in the discussion.

Action:

During this brief period of sharing, the teacher casually gives the boy supportive attention by saying, "Leonard, you know a lot of these words. Can you help us?"

Consequences:

Judging from the smile on his face, the boy appears pleased to have been "singled out." He gradually enters into the discussion.

Rationale:

The teacher sees that this "slower" student is not participating. She feels that even though he may have something valuable to share, he remains quiet because of his difficulty in expressing himself. The teacher knows that group discussion is important in developing concepts and vocabulary, and feels that the boy would profit from participating. She believes that giving him recognition through praise will instill self-confidence and encourage his participation.

Generalization:

Supportive attention, or recognition, motivates the slow student by giving him self-confidence and encouragement.

Underlying Hypothesis:

Emphasizing the Need to Follow Through

Situation:

It is the beginning of a kindergarten work period, and most of the children have begun their activities. The teacher asks one child to take the scissors' basket over to the table. The child goes to the table but forgets to leave the basket.

Action:

The teacher repeats the request for the child to take the basket and leave it on the table.

Consequences:

This time the child leaves the basket on the table, returns to his place and resumes his work. The teacher thanks her when she follows through.

Rationale:

After giving the order, the teacher notices that the child does not completely carry it out. She knows that young children can be easily distracted. She also knows that following directions is important for young children to learn. In order to help these children learn to follow directions, she must be firm in seeing that the specific request is carried out. When the task is completed, the teacher shows approval and pleasure to reinforce the child's accomplishment.

Generalization:

Consistency in seeing that directions are carried out, increases the chances that they will be followed another time.

Underlying Hypothesis:

Handling Interruptions

Situation:

The children in a fourth grade class are preparing to role play a story. As the teacher is giving instructions on how to practice the parts, a child approaches the teacher's desk to ask a question about her part. The teacher asks the girl to return to her seat and then completes her explanation to the class.

Action:

As soon as she finishes, the teacher goes to the child who had a question.

Consequences:

The other children begin to work as the teacher and the girl talk together.

Rationale:

The teacher believes that giving directions is important and is best accomplished with a minimum of interruptions. She also knows that this particular student wants and needs a great deal of personal attention. Realizing it is more important to consider the needs of the group--to finish her explanation so the class can begin to work, the teacher gently asks the girl to wait.

Generalization:

It is important to consider the needs of the entire class before seeing to individual questions that are not of a crucial nature.

Underlying Hypothesis:

Supervising Independent Activity

Situation:

The children in a third grade class are beginning their reading activities. Some children will be working on the S.R.A. reading laboratory work. Others will be doing reading seatwork. A special teacher arrives to help the children who are working on the S.R.A. Program.

Action:

The classroom teacher circulates about the room, giving individual directions and help to those children working on other reading activities.

Consequences:

Working quietly, everyone in the room seems to use the time well. The children do not become impatient while waiting for help, but work independently until the teacher can help them.

Rationale:

The teacher sees that some of the children are having difficulty in getting started with their work. Because they have differing abilities, she realizes that some children are not able to understand what is expected of them following a group explanation. She feels that learning becomes much easier if the atmosphere is free of frustration, and consequently does all she can to make sure her children know what they are to do. Working quietly with individuals also causes less disturbance to the group giving their attention to the S.R.A. materials.

Generalization:

When children are working independently, the teacher must be able to detect signs of frustration and offer her assistance if learning is to occur.

Underlying Hypothesis:

Helping Students with a Common Problem

Situation:

The children are doing an assignment in their arithmetic workbooks and the teacher is walking around the room observing the children's work. Most of the students are not arriving at the correct answers.

Action:

The teacher requests the class to give her their attention and then explains the directions carefully again while using a slightly different illustration.

Consequences:

The confusion is dissipated and the children appear to have more success in solving the problems correctly.

Rationale:

The teacher sees that many students are having similar difficulties, so rather than continue to work with individuals, she gets the attention of the group. She believes that in order to convey meaning, explanations must often be repeated. Varying the nature of her explanation can also be helpful.

Generalization:

Providing a class-wide clarification is more efficient than trying to respond individually to many students who are having the same difficulty.

Underlying Hypothesis:

Increasing Conceptual Understanding

Situation:

The children have been learning about the wind on an educational T.V. Science Program. The teacher has already illustrated how the wind can work by having the children make pinwheels. The children are so enthusiastic that they ask to make pinwheels again.

Action:

The teacher lets the children make the pinwheels again, but this time shows them how spinning affects colors and encourages them to make colorful designs on the paper which they intend to use for the pinwheels.

Consequences:

The children work on the pinwheels, and some of them experiment with diverse colors and designs.

Rationale:

The teacher sees that the children are eager to repeat the activity of making pinwheels. She knows that the children can discover many things by repeating the activity: ways to work, new uses of materials, mistakes and how to correct them, invention and improvement, attitudes toward improvement, etc. She also feels that one activity can lead in many different directions and she takes this opportunity to illustrate and encourage experimentation with the effects of movement on color.

Generalization:

Greater learning results from an elaboration rather than simple repetition of a project which the children request.

Underlying Hypothesis:

Giving Cues for Word-attack Skills

Situation:

The second reading group is working with the teacher at the front of the room. The teacher writes the new words on the board for the children to pronounce. The children are given the word "stay." When it is written on the board, the children cannot pronounce it.

Action:

The teacher writes "day," a familiar word, beside "stay" and asks the children to pronounce it. Then she erases the "d" and replaces it with the letters "st."

Consequences:

The children are now able to pronounce the new word.

Rationale:

The teacher believes that the acquisition of certain basic skills will facilitate later learning. Phonetic word-attack skills are of this order. By encouraging them to use phonetic cues to identify this word, she hopes the students will be more apt to use the strategy in subsequent tasks of word identification. She also believes that learning moves most efficiently from the familiar (the word "day") to the new (the word "stay") and so she uses a word already in their reading vocabulary as a starting point.

Generalization:

Giving cues that will facilitate later learning while moving from the familiar to the new is an effective instructional technique.

Underlying Hypothesis:

Providing Opportunity for Critical Thinking

Situation:

The teacher is working at the chalkboard demonstrating the process of long division to her fourth grade class.

Action:

The teacher purposely introduces an incorrect step in the procedure, has the children identify her error and explain why it is wrong and what the next steps should be.

Consequences:

The children participate readily in the discussion. Many are able to think through the process and suggest alternative steps.

Rationale:

The teacher knows that comprehension of the reason for the steps of an arithmetic process is important for effective learning. She believes children are more able to retain and transfer learning when they have had opportunities to think through a process and verbally explain the reasoning.

Generalization:

Learning new concepts is enhanced when pupils have opportunities to experience critical thinking about the reasoning underlying the concepts.

Underlying Hypothesis:

Providing Opportunities for Creativity

Situation:

While the second-grade children have their heads down on their desks for rest period, the teacher tells them to think about a wish they have. After the rest period, the teacher and the children talk about their wishes.

Action:

The teacher then suggests that the children who want to may write little stories about their wishes.

Consequences:

Over half the children remain in their seats and work on stories.

Rationale:

The teacher believes her students need to become accustomed to talking and writing about their experiences. She knows that young children have ideas and interests of their own, and she feels children can talk and write about these more easily than about prescribed topics. She hopes to coax participation from those who are reluctant to speak out by using a provocative topic like wishes. The teacher also believes that a child cannot be forced to do creative writing; this is something the child has to feel himself. Therefore, after giving everyone an opportunity to talk a little about himself, the teacher makes the writing an optional assignment.

Generalization:

It is important that a teacher encourage children to express themselves creatively.

Underlying Hypothesis:

Providing for Needed Review

Situation:

A sixth grade class is divided into two groups for reading. The teacher works with one group, continuing a story they had started the day before.

Action:

The teacher asks several students to review the story, before they continue reading aloud.

Consequences:

The children are quick to volunteer and seem to enjoy telling the story. They also seem eager to continue the reading.

Rationale:

The teacher recognizes that having the children retell the story is a quick way for her to learn if they are able to understand and retain what they have read. She knows that this brief reminder of the story will also reorient the children as well as motivate them to continue the reading. She feels that students enjoy opportunities to express themselves and this too contributes to pupil enthusiasm.

Generalization:

Reviewing previously covered material helps to reorient and motivate learners.

Underlying Hypothesis:

Building Self-confidence

Situation:

Nine children are asked to return to a reading group semicircle. Each child is given an opportunity to say "very clearly," "I am . . . , I live at . . . , My telephone number is . . ." Some of them mumble, but there is no pressure, only encouragement, when they have difficulty.

Action:

The teacher then encourages applause for each child when he is able to give this information clearly and correctly.

Consequences:

The children appear encouraged to speak up clearly. They seem proud to do well and to receive the applause of their peers.

Rationale:

The teacher feels that many of her children lack self-confidence and a feeling of personal value. She believes that a healthy self-concept aids learning and therefore attempts to increase the children's sense of worth. She feels that a useful step in helping them develop a better concept of self is to encourage respect for their personal identifications such as names, addresses, etc. She also believes that enthusiastic teacher and pupil response will reinforce their feelings of pride.

Generalization:

Helping children experience success and discover personal worth is essential to providing a good learning environment.

Underlying Hypothesis:

Building Confidence

Situation:

A teacher and her class have completed an activity and are about to begin a mathematics lesson. The teacher asks the children to clear their desks as she walks over to a cupboard. When she opens the cupboard door, she hears one boy say, "Ahh!" This child is known to have a difficult home situation, often comes to school with bruises and has exhibited other evidence of having been abused by adults.

Action:

The teacher turns from the cupboard, smiles at the boy, and says, "You like what we're going to do, don't you, Jimmy? Why don't you come and help me get the fraction board?"

Consequences:

The boy smiles and appears pleased with the opportunity and recognition.

Rationale:

The teacher knows that this child is having serious problems at home. His mistreatment by his parents, she feels, has already caused him to withdraw from and be suspicious of other adults. The teacher wants to prevent this happening any further in any way she can. Although this might only help in a small way, by smiling at him and encouraging him, she feels she is reinforcing a positive relationship between herself and the child.

Generalization:

Helping children experience success and discover personal worth is essential to providing a good learning environment.

Underlying Hypothesis:

Helping a Child in "Trouble"

Situation:

It is time for school to begin and the fourth-grade teacher is just beginning the opening exercises. The safety patrol teacher suddenly enters the classroom and calls one of the boys to the front of the room. The boy, who often gets into trouble, committed a safety violation (left the playground and jaywalked) during yesterday's lunch break. The safety patrol teacher is quite a forceful person, and as soon as the boy reluctantly comes to the front of the room, she begins to scold him for the offense and talk about his penalty. The boy looks quite frightened and upset.

Action:

While the safety patrol teacher handles the problem, the room teacher goes to the boy, places her hand on his shoulder, and makes several supportive comments in his behalf (e.g... "This is serious, but I think he understands why we have this rule now," and "I don't think he will do it again, will you, _____?").

Consequences:

The safety patrol teacher ends the discussion by saying that the boy will have to meet with the principal and other teachers in the afternoon. Both teachers and the boy agree he should also write a note about his violation. Keeping her arm on the boy's shoulder, the room teacher walks him partway to his seat. He appears sad and chagrined and continues to be quite a problem all day.

Rationale:

It is apparent to the room teacher that the actions of this quite strong and forceful safety patrol teacher are having a deleterious effect on the boy. The room teacher sees that he feels not only embarrassed but also defeated by yet another incident in which he has been found in the wrong. He has been having a great deal of difficulty learning how to behave in the school environment, and the room teacher wants him to understand that the things he does wrong are what make him seem a "bad" boy, and not the boy himself. She wants him to know that she does not condemn him, though she does not condone his misbehavior. By her physical contact and comments of "faith" in him, she hopes to reassure the boy and convey to him that she is there to help him learn to adapt to the school environment. She believes that a child's ability to learn (academic as well as behavioral) is hindered if his feelings of worth as a person are negative. As a teacher, therefore, she must find means of helping the child develop positive attitudes about himself and school.

Generalization:

It is sometimes necessary for the classroom teacher to provide needed support for a child under pressure and threat.

Underlying Hypothesis:

Minimizing Embarrassment

Situation:

During a language arts lesson, the teacher writes on the board four words that all have the same meaning. He asks the class if they know another word that would have the same meaning as these words. Some children raise their hands; the teacher chooses a girl who has not raised her hand. She does not respond verbally, but blushes in an embarrassed manner.

Action:

The teacher asks the girl if she would like to think about it.

Consequences:

The girl answers yes and the teacher goes on to another student. The children continue to raise their hands, volunteering answers to questions about other sets of words. The girl also volunteers and when called on, gives the correct answer.

Rationale:

The teacher feels that he embarrassed the girl by calling on her when she did not know the answer. His action was unintentional, for he knows that not all children raise their hand when they can answer the teacher's question. However, when he notes the child's discomfort, he feels he must help her out of the situation so that she can again feel secure in the classroom. He passes over her inability to answer by giving her more time to think about the lesson and to see and hear other answers. Soon the girl knows an answer and as soon as she volunteers, indicating she feels secure enough to participate in the activity, he calls on her.

Generalization:

A better learning environment results from the minimizing of embarrassment to individuals.

Underlying Hypothesis:

Relieving Tension

Situation:

It is the beginning of the day and the teacher of a third grade class is checking the attendance. Many children arrive late and are damp because of a severe thundershower which occurred shortly before school began.

Action:

The teacher decides not to mark the children tardy and announces this to the class.

Consequences:

The children appear relieved and relaxed. They assist one another in drying their clothes and prepare for the day's lesson.

Rationale:

The teacher can see the obvious reason for lateness this morning. She knows children are apprehensive about entering the classroom when they are late. If learning activities are to be effective the teacher believes it is important to relieve tension by letting the children know that she understands their reason for lateness and will not hold them responsible. She also knows that thunder upsets some of the children; she attempts, therefore, to attain a calm classroom atmosphere which will alleviate the anxiety caused by the storm.

Generalization:

It is important for a teacher to calm the fears of her pupils if learning is to be maximized.

Underlying Hypothesis:

Clarifying Pupil Misconceptions

Situation:

The teacher is reading a poem about a beetle. In the poem the beetle lives in a matchbox and to illustrate the beetle's house, the teacher brings a matchbox for the children to see. While reading the poem, one of the children keeps asking if the teacher's beetle lives in the box.

Action:

The teacher stops the poem long enough to explain that the poem is a boy's story about his beetle. The box is brought in for them to see so that they can better imagine the house in which the beetle lives.

Consequences:

The child appears satisfied and enjoys the remainder of the poem.

Rationale:

The teacher knows that little children often have difficulty comprehending spacial relationships and also that some of them might not be familiar with a matchbox. She therefore brings one to class, hoping that it will add understanding and imagery to the poem. When she notes the child's apparent misunderstanding, she takes the time to clarify his incorrect assumption. She respects the child's concern and also feels that his preoccupation with the box might well hinder his understanding and enjoyment of the poem if she ignores him and continues reading.

Generalization:

It is important to children's feelings and understandings that a teacher learn to discriminate between legitimate pupil concerns and trivial interruptions.

Underlying Hypothesis:

Individualizing Instruction

Situation:

The teacher is discussing the spelling lesson with the children. They are to fill in the missing letters for three sets of spelling words. One little boy asks if he can fill in the blanks without using his spelling book.

Action:

The teacher shows the children where they can find all three groups of spelling words on one page if they should need it, but says she would be happy if they would try it without their books.

Consequences:

The children are able to complete the work with little difficulty. Many attempt to do the lesson without referring to their book.

Rationale:

The teacher knows that she has students of varied abilities and readiness levels. She also knows that too much frustration can be detrimental to the learning process. She believes that the child who is at ease with his studies learns more efficiently than one who is not at ease. When children are allowed to work on their own and at their own pace, there is opportunity for the brighter students to be challenged, at the same time, the chance of having slower students become unduly frustrated is decreased. If the children are permitted to seek help as they need it by using their books, the allowance for individual differences is made.

Generalization:

Making provision for differences of ability can stimulate learning.

Underlying Hypothesis:

Letting One Child Help Another

Situation:

A class of third grade children is working on spelling activities. The teacher circulates about the room giving assistance to those who need it, and correcting the papers of those children who have finished. One child was absent in the morning when the assignment was explained and is unable to do the work.

Action:

The teacher decides to seat this child near another student who can provide him with the help he needs.

Consequences:

The child is able to start his work. The other children in the room continue with their activities.

Rationale:

The teacher knows that this child, in addition to being slow, is absent frequently and misses much teacher direction. She realizes that providing him with the detailed help he needs would deprive the other children in the class of her time. So, she chooses a child whom she knows has a good grasp of the material and is kind to provide the boy with the direction and supervision he needs. This teacher believes that both children will benefit, one by individual instruction and the other by reinforcement of the material she explains.

Generalization:

It is sometimes beneficial for one learner to provide individual help for another.

Underlying Hypothesis:

Handling Reluctant Learners

Situation:

A group of third grade children has just returned from a remedial reading program. The classroom teacher indicates that she wishes these children to join her at the front of the room for a group reading lesson. Two children, a boy and a girl, appear reluctant to join the activity. The boy doesn't want to join the group because he is cold. The teacher feels that the girl is especially reluctant since she is self-conscious about being the only girl.

Action:

The teacher tells the children quietly that they do not have to read if they don't want to, but she would like them to sit with her. She seats the two children on either side of her, proceeds with the lesson, and puts her arms around them, giving them several pats on the shoulder.

Consequences:

As the lesson progresses, the two children lose their reluctance and enter the activity. They raise their hands, and she calls on them happily, indicating that she is pleased that they wish to take part.

Rationale:

The teacher knows that intensive reading instruction for children who find it difficult is an extremely trying experience. She believes that their "excuses" are indeed true (the child probably really is cold) and these are symptoms of emotional and mental fatigue. Still, she recognizes the tremendous importance of reading to future learning and school success. She hopes to comfort them by talking with them individually, by putting her arms around them for "warmth" and by seating them on either side of her during the lesson. Not wanting to force them and cause further problems, she makes their participation voluntary. She proceeds with the lesson, feeling that they will soon become interested and join in the activity. If they do not participate, they may still benefit from the discussion and instruction and her understanding.

Generalization:

Positive attitudes toward learning and learning itself are dependent upon teacher awareness of pupil emotional and mental fatigue combined with appropriate action to relieve the fatigue.

Underlying Hypothesis:

Helping Children Develop Character

Situation:

The children are busy at the beginning of the day with 'housekeeping' chores. The teacher notices that the pencil sharpener is overflowing with shavings.

Action:

The teacher reminds the boy who has this responsibility, telling him that others will soon need to use the pencil sharpener. She also offers to help him.

Consequences:

With the teacher's assistance, the boy sets about his task, empties the sharpener and then goes to wash his hands.

Rationale:

The teacher believes that children develop a sense of responsibility by taking care of some of the 'housekeeping' duties in the room. She feels that when a child has been given a duty and has neglected to complete it, she must personally see that this duty is performed. If she embarrassed the boy by openly criticizing him for neglecting to empty the sharpener, he might well become resentful. In addition, the teacher knows that getting children to accept responsibility on their own is a difficult task in that it is a trait that is not developed quickly, especially when this learning is not reinforced at home. Children need plenty of time and opportunity, as well as teacher patience and support in order to make progress. Believing that children respond in a positive way to correction that is given in a kind and friendly manner, this teacher gently reminds the child and offers to help him.

Generalization:

The development of character traits requires continuous opportunities for application accompanied by teacher support and reinforcement.

Underlying Hypothesis:

Maintaining Classroom Control

Situation:

A teacher and her fourth grade class are having a spelling lesson. The teacher reads aloud a sentence, omitting a word, and the children choose an appropriate word from their spelling list. Some children begin to respond without raising their hands or being called upon to answer.

Action:

The teacher silently raises her hand and waits.

Consequences:

As the children notice the teacher's raised hand, they raise their hands and wait to be called on. The lesson continues in an orderly fashion, without apparent loss of enthusiasm.

Rationale:

The teacher sees that the children are getting noisier. She knows that children often forget the established rules of classroom order when they are enthusiastically involved in an activity. She appreciates their interest in the lesson, but she believes that this confusion and noise can prevent other children's participation. Not wanting to reprimand the children or decrease their enthusiasm, she brings the class back under control by simply using a subtle, meaningful gesture.

Generalization:

Positive and subtle control of an enthusiastic group of learners improves the learning atmosphere.

Underlying Hypothesis:

Providing Positive Recognition

Situation:

A teacher is working with her class on the use of the index. One child has been placed in a seat near the teacher, slightly removed from the rest of the group, because of misbehavior. He has not been participating in the activity. The teacher asks for a group response to a question and hears the boy answer along with the rest of the class.

Action:

The teacher says, "Kenneth, it's nice to have you with us again. Thank you for helping."

Consequences:

The boy smiles shyly and continues to join in.

Rationale:

The teacher found it necessary to isolate this child from the group at an earlier time due to his continuous distraction of other children. She knows that he is unhappy with the disciplinary measure, and to "punish" her, he does not participate. When she notices that he does join in with the group, she singles him out for positive recognition. Since so much of his recognition is negative, this teacher believes that she should recognize his positive behavior at every opportunity in the hope that he will be encouraged to seek his attention in this manner rather than through less desirable means.

Generalization:

Behaviors which are rewarded are more likely to recur.

Underlying Hypothesis:

Handling Problem Children

Situation:

The children are settling down after lunch and are waiting for gym period. One window in the room is open; Mike opens two others. A boy complains of being cold, and Mike changes places with him rather than close the windows. Several children begin to complain of the cold as the wind blows into the room. The teacher overlooks the situation for awhile, but the complaints continue.

Action:

The teacher tells Mike that ~~he~~ cannot think only of his own comfort. She asks him to close the windows.

Consequences:

Mike mutters a bit but gets up and closes the windows.

Rationale:

The teacher knows that Mike often seeks group attention and is prone to getting into trouble. Since it is just about time to leave for the gymnasium, she hopes to be able to ignore the situation. However, as the room gets quite cold and windy, she sees that Mike's behavior is interfering with the comfort and well-being of the other children. She feels that a problem child like Mike needs time to learn to adjust to the social situation of the classroom and that she must have the patience and understanding to help him. But she feels she must consider the needs of the group when one child's behavior causes discomfort to many.

Generalization:

When inappropriate behavior of one child disturbs others in the classroom, teacher intervention is necessary, and at that moment.

Underlying Hypothesis:

Homework Assignments

Situation:

The lesson is on long division. The teacher reviews the procedure on the board, in addition to the terminology. Then the teacher asks individuals to give examples from their homework. Several students have not done their homework.

Action:

The teacher does not reprimand these students but skips over them and goes on to the students who have their work done.

Consequences:

The pupils continue to participate and the lesson is finished smoothly.

Rationale:

The teacher knows that many of her pupils are from homes that are not conducive to study and homework. She feels the children should be made to feel comfortable and secure in the classroom situation so that learning can be facilitated. She believes it best, therefore, to concentrate on the material of the lesson, rather than on the fact that an assignment has not been done.

Generalization:

Learning is enhanced by a threat free attitude of the teacher.

Underlying Hypothesis:

Quieting the Disruptive Child

Situation:

The children are sitting on the floor in front of the teacher who is reading a story from a book. Most of the children are quiet and attentive. One boy, in back of the group, begins to bother others and fool with his cap. This continues, in spite of the teacher's "facial signal" to settle down.

Action:

After a short time, in a quiet, matter-of-fact voice, the teacher tells the child to sit next to her. She removes his cap and continues reading.

Consequences:

The child becomes quiet and there are no further distractions.

Rationale:

The teacher likes to give her students the opportunity to discipline themselves. If, however, they are unable to do so, she is willing to give them the assistance they need. She finds that close proximity to an adult and those children most engrossed in the story is all the aid this child requires to regain his self-control.

Generalization:

Physical relocation of a disturbing child leads to more constructive behavior than does exclusion or punishment.

Underlying Hypothesis:

Discipline During a Test

Situation:

The children in a sixth grade class are working on arithmetic test problems at their desks. All are working quietly except for two boys who are talking to each other.

Action:

The teacher says, "Boys, remember this is a test and it should be quiet."

Consequences:

The boys stop their talking and return to their work.

Rationale:

Ordinarily, when children talk to each other during a test, one might assume they are cheating. However, the teacher feels that she should be flexible. Although the children are talking, she believes that their conversation does not involve the arithmetic problems. Rather than disturb the test atmosphere by destroying their papers (believing all conversations taking place during testing constitute cheating), this teacher chooses to remind the boys about talking and directs them back to their work. Thus, the class can continue working without being disturbed or feeling threatened by the teacher's action toward the boys who were talking.

Generalization:

During testing, to preserve an atmosphere which is conducive to the best student performance, the teacher should avoid severe disciplinary measures.

Underlying Hypothesis:

Oral Evaluation

Situation:

A class of sixth grade children are doing English exercises involving the use of prepositional phrases and identifying prepositional phrases in sentences.

Action:

The teacher corrects the work by calling on the children to read their work aloud.

Consequences:

Each child called upon reads his sentence. If the work is done incorrectly, it is corrected then by the teacher and the other pupils.

Rationale:

The teacher can see that most of the children have completed the exercise. She knows that children enjoy reading their work aloud, so she uses this method of evaluating their grasp of the material presented. This teacher also believes that if errors have been made, they should be corrected soon after an exercise has been completed; so that the learner may retain the correct idea. Those learners who have completed the sentences correctly are rewarded by personal satisfaction and teacher approval.

Generalization:

Oral evaluation and discussion of learning exercises soon after the exercise has been completed increase pupil comprehension and retention.

Underlying Hypothesis:

Evaluating New Teaching Methods

Situation:

It is time to begin the arithmetic lesson. On the previous day, the teacher tried pairing up the children in groups of two, with one pupil acting as a teacher and the other as a student.

Action:

The teacher gives each student a dittoed sheet of arithmetic problems and tells them to work individually on the problems. She then walks around the room, noticing the children's progress.

Consequences:

The children work quietly and the teacher discovers which children are still having difficulty with the lesson.

Rationale:

The teacher thinks that the students' responses to the exercise will help inform her of the success of the teaching method used the previous day. She can then evaluate the impact of the new approach as a teaching tactic. She also knows that the quiz will tell her about the progress of each student toward mastering the arithmetic lesson; she may then help those who are having difficulty and determine whether individuals or the class as a whole needs further instruction on the lesson.

Generalization:

When a teacher creates a new instructional exercise, it is important that she evaluates the effectiveness of the exercise and decides whether it is a worthwhile teaching device.

Underlying Hypothesis:

Sensing How Children Feel

Situation:

For the opening activity the children are singing "The Battle Hymn of the Republic." The teacher is helping the class with their enunciation and their timing. She notices that several girls are slumped on their desks as if still half asleep. They are not participating.

Action:

The teacher asks one of the girls, "Are you going to help us, Nancy?"

Consequences:

Nancy makes an effort to sing with the group. The other girls appear to be aroused by the teacher's question and also begin singing.

Rationale:

Since this is the first activity of the morning, the teacher makes it a practice to notice the "emotional tone" of her students at this time. Sometimes something has happened at home that seriously affects their mood and therefore their readiness to learn. If the gentle means of prodding the girls is enough to bring them into the group, probably nothing is serious. If, however, they still remain apathetic and moody, this will serve as a cue that perhaps something is really bothering them and will affect how the teacher will subsequently work with them.

Generalization:

It is important that the teacher be cognizant of children's emotional tone in order for her to "handle" the children appropriately and therefore maximize their learning.

Underlying Hypothesis:

Subordinating Rules for Pupil Well-being

Situation:

A sudden storm forces the children in a third grade class to enter the classroom ten minutes before the final bell for afternoon classes. There is a rule that upon entering the room from lunch break, the students are to take their seats. Some of the children go to the window to watch the rain and warm themselves by the radiators, however, while others move freely about the room.

Action:

The teacher permits this freedom of movement until the final bell rings.

Consequences:

When the final bell sounds the children take their seats willingly.

Rationale:

The teacher notices that many of the children have damp clothing. Besides satisfying their curiosity by gazing out the window the children are able to dry their clothing from the heat of the radiator. Because the recess period has been shortened by the rain, the teacher believes it is important to allow them freedom of movement in the classroom. She feels that when the bell rings, indicating the time for class to begin, the children will be better prepared to begin their lesson.

Generalization:

It is important for the teacher to be flexible about rules when the comfort and health of the pupils are concerned.

Underlying Hypothesis:

Distributing Needed Materials

Situation:

It is time for the social studies period in a third grade classroom. The books and materials needed for the lesson are kept in a bookcase on a side wall of the classroom.

Action:

The teacher has the "group leaders" distribute and collect the books and materials.

Consequences:

Both operations are handled smoothly and quickly.

Rationale:

The teacher knows that children enjoy being given some responsibility for the management of the room. Letting them take turns and get materials for others is also a simple but efficient means of distributing needed materials that don't fit in desks. She believes that the duty of collecting and distributing materials aids in creating a sense of orderliness and responsibility.

Generalization:

Providing students with classroom duties helps develop orderliness and a sense of responsibility.

Underlying Hypothesis:

Taking Advantage of Immediate Situations

Situation:

The children are having "sharing time" and are contributing eagerly. One girl tells the class that a little boy, one of her classmates, was shooting a bean shooter at her.

Action:

The teacher interrupts "sharing time" to ask the children why bean shooters are dangerous.

Consequences:

The students discuss the safety of bean shooters enthusiastically and reach the decision that they are dangerous. The transition back to "sharing time" is smooth and is also very responsive.

Rationale:

The teacher believes that she should take advantage of opportunities to increase awareness of safety. She feels that topics have most meaning when initiated by the students and when dealt with at the time they arise.

Generalization:

Encouraging habits of safety is an important responsibility of the teacher.

Underlying Hypothesis:

Orderly Pupil Movement in the Classroom

Situation:

The second grade children have been asked to draw a picture about the two stories they have heard this afternoon. They are still seated on the floor around the teacher.

Action:

To get the children back to their seats, the teacher says, "Anyone wearing green may go to his seat and get his crayons out." She continues in a similar manner until all the children are seated.

Consequences:

The children listen carefully for their cues to return to their seats. They begin their assignment quietly.

Rationale:

The teacher feels that young children are able to control themselves in small groups better than in larger ones. She therefore sends the students to their seats in small groups, choosing a device which will require quiet attention, thus setting the mood for the drawing lesson. The transition also breaks the serious pattern with the atmosphere of a game while at the same time requiring a quiet attentive response from the children.

Generalization:

Young children need the opportunity to practice self-control but need the teacher's assistance in gradually developing this ability.

Underlying Hypothesis:

Helping Pupils Learn to Concentrate

Situation:

An arithmetic period is in progress. The children are working on problems at their desks. The door of the classroom is open to heat the room from the hallway, and to welcome anticipated visitors. The noise heard in the classroom varies with the traffic in the hall. At times it is quite loud.

Action:

The teacher leaves the door open in spite of the noise.

Consequences:

The children continue their work regardless of the noise. Visitors enter and leave without disturbing the 'work climate' in the room.

Rationale:

The teacher sees that in spite of the noise, the children continue their work without appearing to be distracted. Since all of these children are from the city she knows that they have a high tolerance for noise. She feels that closing the door, causing visitors to knock, would be more distracting to the children. Because these children have many audio distractions in their homes, she also believes that they should learn to concentrate and ignore the noise. In addition, it is important to have the door open if the room is to be kept at a comfortable temperature.

Generalization:

It is desirable for children to learn to concentrate on their work in an atmosphere where some external noises are present.

Underlying Hypothesis:

APPENDIX B

FORTY-FIVE INCOMPLETE FOCUSED

OBSERVATION WORKSHEETS

(Based upon the forty-five selected Focused Observations drawn from the model--and presenting only the problem-solving situation)

FOCUSED OBSERVATION WORKSHEET FORMAT

NAME: _____

SITUATION (This space was used to present one of the problem-solving situations discussed in this study. A complete list of the forty-five content problems thus presented appears on the following pages.)

What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

2. CONSEQUENCES:

3. Give reasons for your choice of alternative above:

PROBLEM-SOLVING SITUATIONS

Taken from the Mott Study: "Teaching in the Inner City" and Presented in Separate Form on the Forty-Five Focused Observation Worksheets.

SITUATION: #120--1.1

The teacher explains to the class that the play they will be reading has fewer characters than there are members in the class. She says that following the reading of the story, the group may dramatize the play.

SITUATION: #70--1.2

It is nearly time for a class of third grade children to be dismissed for the morning. The teacher tells them that the art teacher will be coming in the afternoon and that their other materials should be put away.

SITUATION: #141--1.3

After going over a spelling lesson orally with the teacher, the children begin a similar exercise in their notebooks while the teacher circulates around the room checking individual progress. The children have reading and spelling difficulties, and the work is progressing slowly.

SITUATION: #210--1.31

Several sixth grade classes are cooperating in the preparation of a spring program. While some of the children are rehearsing with two of the teachers, the remaining children are in one classroom. The room contains a diverse group of children whose reading abilities encompass a minimum of a five-grade span. Rather than divide the children into ability groups, the teacher has them all read together.

SITUATION: #155--1.32

The teacher is working with a slow reading group. She has taken some sentences from a story that the children have read, and asks the pupils to arrange them in a logical order. The children appear to have difficulty understanding the assignment.

SITUATION: #51--1.33

It is near the end of the morning session and some of the students have to leave shortly for their safety posts. The teacher is planning to read a story about Paul Bunyan for the remaining part of the morning.

SITUATION: #107--1.34

The class is working on a phonics lesson in which word building is the activity, i.e., all, ball, call, etc. When a new word is listed on the board, the teacher calls on one of the children to write a rhyming word beside it. As the activity progresses the teacher notices that the attention of some of the students is beginning to wander.

SITUATION: #146--1.4

The teacher and her class have just returned from a musical program in the auditorium. Ten minutes remain before the day's dismissal.

SITUATION: #74--2.1

The art teacher is in the room. The classroom teacher assists by passing out materials, and encouraging children to share the cloth, beads, rice, etc., which they have brought from home.

SITUATION: #53--3.1

A teacher is introducing a new unit on Africa to her class by showing colored pictures of the country and discussing the pictures with the students. As she talks one of the pictures falls to the floor with a great crash.

SITUATION: #28--5.1

The children have been learning about the wind on an educational T.V. Science Program. The teacher has already illustrated how the wind can work by having the children make pinwheels. The children are so enthusiastic that they ask to make pinwheels again.

SITUATION: #13--5.2

The second reading group is working with the teacher at the front of the room. The teacher writes the new words on the board for the children to pronounce. The children are given the word "stay." When it is written on the board, the children cannot pronounce it.

SITUATION: #133--5.3

The teacher is working at the chalkboard demonstrating the process of long division to her fourth grade class.

SITUATION: #223--5.4

While the second grade children have their heads down on their desks for rest period, the teacher tells them to think about a wish they have. After the rest period, the teacher and the children talk about their wishes.

SITUATION: #115--5.5

A sixth grade class is divided into two groups for reading. The teacher works with one group, continuing a story they had started the day before.

SITUATION: #41--6.1

Nine children are asked to return to a reading group semicircle. Each child is given an opportunity to say "very clearly," "I am . . . , I live at . . . , My telephone number is . . ." Some of them mumble, but there is no pressure, only encouragement, when they have difficulty.

SITUATION: #199--3.1

A kindergarten class is busy cleaning up the room for the day. The teacher has appointed two children "captains" and placed them in charge of the clean-up activities. At the conclusion of the clean-up activity, discussion and evaluation of the pupils' roles take place.

SITUATION: #76--3.2

It is the science period in a kindergarten class. The children and the teacher are discussing some freshly cut branches from trees and shrubs. One of the slower children is not participating in the discussion.

SITUATION: #81--4.11

It is the beginning of a kindergarten work period and most of the children have begun their activities. The teacher asks one child to take the scissors' basket over to the table. The child goes to the table but forgets to leave the basket.

SITUATION: #145--4.12

The children in a fourth grade class are preparing to role play a story. As the teacher is giving instructions on how to practice the parts, a child approaches the teacher's desk to ask a question about her part. The teacher asks the girl to return to her seat and then completes her explanation to the class.

SITUATION: #67--4.21

The children in a third grade class are beginning their reading activities. Some children will be working on the S.R.A. reading laboratory work. Others will be doing reading seatwork. A special teacher arrives to help the children who are working on the S.R.A. Program.

SITUATION: #21--4.22

The children are doing an assignment in their arithmetic workbooks and the teacher is walking around the room observing the children's work. Most of the students are not arriving at the correct answers.

SITUATION: #127--6.11

A teacher and her class have completed an activity and are about to begin a mathematics lesson. The teacher asks the children to clear their desks as she walks over to a cupboard. When she opens the cupboard door, she hears one boy say, "ahh!" This child is known to have a difficult home situation, often comes to school with bruises and has exhibited other evidence of having been abused by adults.

SITUATION: #167--6.2

It is time for school to begin and the fourth grade teacher is just beginning the opening exercises. The safety patrol teacher suddenly enters the classroom and calls one of the boys to the front of the room. The boy, who often gets into trouble, committed a safety violation (left the playground and jaywalked) during yesterdays' lunch break. The safety patrol teacher is quite a forceful person, and as soon as the boy reluctantly comes to the front of the room, she begins to scold him for the offense and talk about his penalty. The boy looks quite frightened and upset.

SITUATION: #177--6.2

During a language arts lesson, the teacher writes on the board four words that all have the same meaning. He asks the class if they know another word that would have the same meaning as these words. Some children raise their hands; the teacher chooses a girl who has not raised her hand. She does not respond verbally, but blushes in an embarrassed manner.

SITUATION: #104--6.3

It is the beginning of the day and the teacher of a third grade class is checking the attendance. Many children arrive late and are damp because of a severe thundershower which occurred shortly before school began.

SITUATION: #25--6.4

The teacher is reading a poem about a beetle. In the poem the beetle lives in a matchbox and to illustrate the beetle's house, the teacher brings a matchbox for the children to see. While reading the poem, one of the children keeps asking if the teacher's beetle lives in the box.

SITUATION: #12--7.1

The teacher is discussing the spelling lesson with the children. They are to fill in the missing letters for three sets of spelling words. One little boy asks if he can fill in the blanks without using his spelling book.

SITUATION: #71--7.2

A class of third grade children is working on spelling activities. The teacher circulates about the room giving assistance to those who need it, and correcting the papers of those children who have finished. One child was absent in the morning when the assignment was explained and is unable to do the work.

SITUATION: #68--7.4

A group of third grade children has just returned from a remedial reading program. The classroom teacher indicates that she wishes these children to join her at the front of the room for a group reading lesson. Two children, a boy and a girl, appear reluctant to join the activity. The boy doesn't want to join the group because he is cold. The teacher feels that the girl is especially reluctant since she is self-conscious about being the only girl.

SITUATION: #99--8.1

The children are busy at the beginning of the day with "housekeeping" chores. The teacher notices that the pencil sharpener is overflowing with shavings.

SITUATION: #116--8.11

A teacher and her fourth grade class are having a spelling lesson. The teacher reads aloud a sentence, omitting a word, and the children choose an appropriate word from their spelling list. Some children begin to respond without raising their hands or being called upon to answer.

SITUATION: #125--8.12

A teacher is working with her class on the use of the index. One child has been placed in a seat near the teacher, slightly removed from the rest of the group, because of misbehavior. He has not been participating in the activity. The teacher asks for a group response to a question and hears the boy answer along with the rest of the class.

SITUATION: #180--8.2

The children are settling down after lunch and are waiting for gym period. One window in the room is open; Mike opens two others. A boy complains of being cold, and Mike changes places with him rather than close the windows. Several children begin to complain of the child as the wind blows into the room. The teacher overlooks the situation for a while, but the complaints continue.

SITUATION: #136--8.21

The lesson is on long division. The teacher reviews the procedure on the board, in addition to the terminology. Then the teacher asks individuals to give examples from their homework. Several students have not done their homework.

SITUATION: #22--8.22

The children are sitting on the floor in front of the teacher who is reading a story from a book. Most of the children are quiet and attentive. One boy, in back of the group, begins to bother others and fool with his cap. This continues, in spite of the teacher's "facial signal" to settle down.

SITUATION: #61--8.22

The children in a sixth grade class are working on arithmetic test problems at their desks. All are working quietly except for two boys who are talking to each other.

SITUATION: #192--9.1

A class of sixth grade children are doing English exercises involving the use of prepositional phrases and identifying prepositional phrases in sentences.

SITUATION: #72--9.3

It is time to begin the arithmetic lesson. On the previous day, the teacher tried pairing up the children in groups of two, with one pupil acting as a teacher and the other as a student.

SITUATION: #36--9.4

For the opening activity the children are singing "The Battle Hymn of the Republic." The teacher is helping the class with their enunciation and their timing. She notices that several girls are slumped on their desks as if still half asleep. They are not participating.

SITUATION: #94--10.1

A sudden storm forces the children in a third grade class to enter the classroom ten minutes before the final bell for afternoon classes. There is a rule that upon entering the room from lunch break, the students are to take their seats. Some of the children go to the window to watch the rain and warm themselves by the radiators, however, while others move freely about the room.

SITUATION: #96--10.2

It is time for the social studies period in a third grade classroom. The books and materials needed for the lesson are kept in a bookcase on a side wall of the classroom.

SITUATION: #11--10.3

The children are having "sharing time" and are contributing eagerly. One girl tells the class that a little boy, one of her classmates, was shooting a bean shooter at her.

SITUATION: #18--10.4

The second grade children have been asked to draw a picture about the two stories they have heard this afternoon. They are still seated on the floor around the teacher.

SITUATION: #97--10.5

An arithmetic period is in progress. The children are working on problems at their desks. The door of the classroom is open to heat the room from the hallway, and to welcome anticipated visitors. The noise heard in the classroom varies with the traffic in the hall. At times it is quite loud.

APPENDIX C

CRITERION INSTRUMENTS NUMBERED 53 and 214:

(two with no alternatives listed, and
two with twelve alternatives
listed by the researcher)

NAME: _____

SITUATION: #53--3.1 A teacher is introducing a new unit on Africa to her class by showing colored pictures of the country and discussing the pictures with the students. As she talks one of the pictures falls to the floor with a great crash. What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

2. Rate the alternatives you would most likely take using the scale below:

- A Strongly Agree--Always Use
B Agree--More Often Than Not Use--Most of the Time
C Disagree--Occasionally Use--Some of the Time
D Strongly disagree--Never Use

3. How difficult was it for you to rate the alternatives above:

EASY DIFFICULT

Very Rather Easy Difficult Rather Very
Easy Easy Difficult Difficult Difficult

4. Give reasons for your highest choice of alternative: (on other side).

NAME: _____

SITUATION: #214--9.3 It is approaching time for noon dismissal. The children are industriously working arithmetic problems at their desks. There is not enough time for all of them to complete the entire assignment, so some will have to take their problems home or finish them during the study period tomorrow. What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

2. Rate the alternatives you would most likely take using the scale below:

A Strongly Agree--Always Use

B Agree--More Often Than Not Use--Most of the Time

C Disagree--Occasionally Use--Some of the Time

D Strongly Disagree--Never Use

3. How difficult was it for you to rate the alternatives above:

EASY _____ DIFFICULT

Very Easy Rather Easy Easy Difficult Rather Difficult Very Difficult

4. Give reasons for your highest choice of alternative: (on other side)

NAME: _____

SITUATION: #53--3.1 A teacher is introducing a new unit on Africa to her class by showing colored pictures of the country and discussing the pictures with the students. As she talks one of the pictures falls to the floor with a great crash. What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

- ____ 1. The teacher should pick up the picture.
- ____ 2. Smile, make a remark, or apologize for the noise.
- ____ 3. Ignore it; don't let it distract you; pick it up later.
- ____ 4. Involve a student(s) in picking it up.
- ____ 5. Demand that a student(s) help pick up the picture.
- ____ 6. Get mad; use verbal abuse; feel flustered or embarrassed.
- ____ 7. Relate the crash to Africa's sounds or to the picture's content.
- ____ 8. Use the situation to teach students about orderliness.
- ____ 9. Continue the lesson without the picture.
- ____ 10. Laugh, tell a joke, or make a humorous comment.
- ____ 11. Stop the lesson; dismiss for recess, or go to another subject.
- ____ 12. Make a sarcastic, caustic or "smart" remark.

2. Rate the alternatives you would most likely take using the scale below:

- A Strongly Agree--Always Use
B Agree--More Often Than Not Use--Most of the Time
C Disagree--Occasionally Use--Some of the Time
D Strongly Disagree--Never Use

3. How difficult was it for you to rate the alternatives above:

EASY _____ DIFFICULT
 Very Rather Easy Difficult Rather Very
 Easy Easy Difficult Difficult

4. Give reasons for your highest choice of alternative: (on other side).

NAME: _____

SITUATION: #214--9.3 It is approaching time for noon dismissal. The children are industriously working arithmetic problems at their desks. There is not enough time for all of them to complete the entire assignment, so some will have to take their problems home or finish them during the study period tomorrow. What could you do?

1. ACTION: List the alternatives (actions) that the teacher could take:

- _____ 1. Finish work after lunch during study or free period.
- _____ 2. Finish at home, thereby teaching self-discipline.
- _____ 3. Collect now and evaluate only the completed work.
- _____ 4. Give students the choice: finish now, or do at home.
- _____ 5. Finish work now, i.e., work through the lunch period.
- _____ 6. The assignment is too difficult; toss it out.
- _____ 7. Have students come in after school to finish work.
- _____ 8. Be aware of differences in time needed: finish at home.
- _____ 9. Finish tomorrow, i.e., allow more time in class.
- _____ 10. Be aware of different learning rates; collect work done.
- _____ 11. Select some problems to hand-in now; forget the rest.
- _____ 12. Finish now; parents and others may do if taken home.

2. Rate the alternatives you would most likely take using the scale below:

A Strongly Agree--Always Use

B Agree--More Often Than Not Use--Most of the Time

C Disagree--Occasionally Use--Some of the Time

D Strongly Disagree--Never Use

3. How difficult was it for you to rate the alternatives above:

EASY _____ DIFFICULT

Very	Rather	Easy	Difficult	Rather	Very
Easy	Easy			Difficult	Difficult

4. Give reasons for your highest choice of alternative: (on other side).

APPENDIX D

INSTRUMENTS USED IN INSTRUCTIONAL TREATMENT
GROUPS A AND GROUPS B TO MEASURE SELECTED
PSYCHOLOGICAL CHARACTERISTICS
REPRESENTATIVE OF THE RESPONSE
SYSTEMS AVAILABLE TO THE
LEARNER

WHAT TO DO

This Inventory consists of 98 interests, attitudes, and opinions. This is not a test. There are no "right" or "wrong" answers because everyone has the right to his own likes, feelings, and opinions. Your choices should be a description of your own personal likes and feelings. When you answer keep these points in mind:

1. You are asked not to spend time in pondering. Give the first, natural answer that comes to you. Of course, the questions are too short to give you all the information you would sometimes like to have. You are asked to reply "for the average situation." Give the best answer you can.
2. Be sure not to skip anything, but answer every question, somehow. Some may not apply to you very well, but give your best guess. Some may seem personal; but remember that the answer sheets are kept confidential and cannot be scored without a special stencil key. Only your instructor has this special key. Answers to specific questions will not be inspected.
3. Answer as honestly as possible what is true of you. Do not merely mark what seems "the right thing to say" to impress your instructor.

4. Do not mark on the inventory booklet. On the separate answer sheet are numbers corresponding to the numbers of the statements. Make a choice for every set of statements; do not skip any. Check to be sure you are marking for the same item numbers corresponding to the numbers of the item you are reading in the inventory.

Do not debate too long over any one statement; your first reaction is desired.

You should finish in a little more than half an hour.

Write your name on your answer sheet.

.

Items, in the Order Presented¹

Edwards, Allen L. Edwards Personal Preference Schedule. New York: The Psychological Corporation, 1954.

One manifest need represented by twenty-eight items was selected from this personality inventory for use in the study:

Intracception consists of twenty-eight items, Edward's numbers 31, 32, 33, 34, 35, 77, 82, 87, 92, 97, 102, 106, 108, 109, 110, 112, 117, 122, 127, 132, 137, 142, 147, 181, 182, 183, 184, and 185.

¹Permission to quote the items in this dissertation was not granted by the publisher.

FACTORS A, I, M, Q1

For this section additional directions are required.

Try not to fall back on the middle, "uncertain" answers except when the answer at either end is really impossible for you--perhaps once every three or four questions.

Check to make sure you are marking for the same item numbers corresponding to the number of the item you are reading in the inventory.

Work as quickly as you can.

.

Items, in the Order Presented¹

Cattell, Raymond B. The Sixteen Personality Factor Questionnaire, Form A, 1962 edition. Champaign, Illinois: The Institute for Personality and Ability Testing, 1962.

Four factors represented by forty-three items were selected from this personality inventory for use in the study:

Factor A consists of ten items, Cattell's numbers
3, 26, 27, 51, 52, 76, 101, 126, 151,
and 176;

Factor I consists of ten items, Cattell's numbers
11, 12, 37, 62, 87, 112, 137, 138, 162,
and 163;

¹Permission to quote the items in this dissertation was not granted by the publisher.

Factor M consists of thirteen items, Cattell's numbers 14, 15, 39, 40, 65, 90, 91, 115, 116, 140, 141, 165, and 166; and Factor Q1 consists of ten items, Cattell's numbers 20, 21, 45, 46, 70, 95, 120, 145, 169, and 170.

SECTION ORI

For this section additional directions are required.

For each statement please indicate in the answer blocks which of the alternatives A, B, or C is most true, or most preferred, or most important to you by writing A, B, or C in the MOST column.

Then choose the least true, or least preferred of the three alternatives and write its letter in the LEAST column.

For every statement, be sure you mark one alternative in each column. If A is entered under MOST, then either B or C should be marked under LEAST, and so on.

Work as quickly as you can.

.

Items, in the Order Presented¹

Bass, Bernard M. The Orientation Inventory. Palo Alto, California: Consulting Psychologists Press, Inc., 1962.

¹Permission to quote the items in this dissertation was not granted by the publisher.

The complete personality inventory, consisting of twenty-seven items, was selected for use in the study.

ANSWER SHEET

NAME: _____

SECTION I
(Circle One)FACTOR AFACTOR ISECTION ORIM
O
S
T
L
E
A
S
T

1. A B
2. A B
3. A B
4. A B
5. A B
6. A B
7. A B
8. A B
9. A B
10. A B
11. A B
12. A B
13. A B
14. A B
15. A B
16. A B
17. A B
18. A B
19. A B
20. A B
21. A B
22. A B
23. A B
24. A B
25. A B
26. A B
27. A B
28. A B

1. A B C
2. A B C
3. A B C
4. A B C
5. A B C
6. A B C
7. A B C
8. A B C
9. A B C
10. A B C

FACTOR M

1. A B C
2. A B C
3. A B C
4. A B C
5. A B C
6. A B C
7. A B C
8. A B C
9. A B C
10. A B C
11. A B C
12. A B C
13. A B C

1. A B C
2. A B C
3. A B C
4. A B C
5. A B C
6. A B C
7. A B C
8. A B C
9. A B C
10. A B C

FACTOR Q1

1. A B C
2. A B C
3. A B C
4. A B C
5. A B C
6. A B C
7. A B C
8. A B C
9. A B C
10. A B C

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____

Please read the following adjectives quickly. Place an X in the blank beside each one you consider true of yourself (MYSELF).

Then go through the list again, placing an X in the blank beside each adjective you consider true of yourself as you would like to be (MY IDEAL SELF).

Repeat the process again for yourself as a future teacher (MY SELF AS A TEACHER).

Do not worry about duplications, contradictions, and so forth. Work quickly and do not spend much time on any one adjective. Try to be frank.

.

Items, in the Order Presented¹

Gough, Harrison G. The Adjective Check List. Palo Alto, California: Consulting Psychologists Press, 1952

Twenty-nine adjectives were selected from this check list for use in the study with respect to three self-concept ratings, Gough's numbers 8, 10, 12, 15, 20, 37, 41, 42, 45, 49, 60, 64, 83, 96, 103, 114, 124, 142, 146, 148, 150, 170, 183, 205, 235, 246, 257, 259, and 265.

¹Permission to quote the items in this dissertation was not granted by the publisher.

NAME: _____

ADJECTIVES:MYSELFMY IDEAL
SELFMYSELF AS A
TEACHER

1.	(	)	.	.	.	_____	_____	_____
2.	(	)	.	.	.	_____	_____	_____
3.	(	)	.	.	.	_____	_____	_____
4.	(	)	.	.	.	_____	_____	_____
5.	(	)	.	.	.	_____	_____	_____
6.	(	)	.	.	.	_____	_____	_____
7.	(	)	.	.	.	_____	_____	_____
8.	(	)	.	.	.	_____	_____	_____
9.	(	)	.	.	.	_____	_____	_____
10.	(	)	.	.	.	_____	_____	_____
11.	(	)	.	.	.	_____	_____	_____
12.	(	)	.	.	.	_____	_____	_____
13.	(	)	.	.	.	_____	_____	_____
14.	(	)	.	.	.	_____	_____	_____
15.	(	)	.	.	.	_____	_____	_____
16.	(	)	.	.	.	_____	_____	_____
17.	(	)	.	.	.	_____	_____	_____
18.	(	)	.	.	.	_____	_____	_____
19.	(	)	.	.	.	_____	_____	_____
20.	(	)	.	.	.	_____	_____	_____
21.	(	)	.	.	.	_____	_____	_____
22.	(	)	.	.	.	_____	_____	_____
23.	(	)	.	.	.	_____	_____	_____
24.	(	)	.	.	.	_____	_____	_____
25.	(	)	.	.	.	_____	_____	_____
26.	(	)	.	.	.	_____	_____	_____
27.	(	)	.	.	.	_____	_____	_____
28.	(	)	.	.	.	_____	_____	_____
29.	(	)	.	.	.	_____	_____	_____

VALUES

NAME: _____

DIRECTIONS: Below is a list of things people look for when choosing a job. Decide which one you think is the most important and then place a 1 in the blank opposite it. Do the same for your choice 2, 3, 4, etc.; 10 would represent the thing that is of least importance to you. Be sure you have placed a number opposite each word.

- _____ 1. ADVANCEMENT (a job with a chance to get ahead--promotion).
- _____ 2. BENEFITS (vacations, social security, retirement plans).
- _____ 3. INDEPENDENCE (be my own boss, or work on my own).
- _____ 4. INTERESTING WORK (a job that I can enjoy).
- _____ 5. PRESTIGE (work that is highly respected).
- _____ 6. RELATIONS WITH OTHERS (job where I can work with people I like).
- _____ 7. SALARY (highly paid job).
- _____ 8. SECURITY (steady work, sure of a job).
- _____ 9. SERVICE TO OTHERS (job where I can help people).
- _____ 10. WORKING CONDITIONS (a job with good hours, pleasant surroundings).

The common Midterm Examination and common Final Examination items are under the security of the School of Teacher Education, Michigan State University.

Qualified researchers will be granted permission to examine these items on request to the author or to the Coordinator of Testing (Educational Psychology 200: Individual and the School), School of Teacher Education, Erickson Hall, Michigan State University, East Lansing, Michigan, 48823.

APPENDIX E

FOCUSED OBSERVATION REPORT

FORM IX

MSU/LSI: CSP 267

CASE # _____

OBSERVATION REPORT (Form IX)

Age Range of Pupils: _____ Grade: _____ Observer: _____

Teaching Activity: _____ Teacher Observed: _____

Date: _____ Time: _____ School _____ City _____

This form records a 10-15 minute segment of teaching activity and describes one moment of teacher action. The particular act described on this page may be important or relatively unimportant, but it reflects a sample element in one teacher's style.

1. Observer: On the basis of what you have been seeing and hearing, briefly describe what is happening in the classroom.
2. Observer: Describe an act that the teacher made during this brief observation. (To continue or to ignore may be considered "acts.").

Side 2

Observer: [Do not let the teacher read this side of the form until after your tape-recorded session.]*

3. Observer: What happened as a result of the act which you have described?

*[]: instructions to observer.

TAPE RECORDED INTERVIEW WITH TEACHER

Observer: [Turn on recorder

State: "This is observation "____."

State: "To complete this description that you have just read, I need to ask several questions."]

4. Why did you take the particular action I have described?
5. What else should I know about the situation and the children in order to get a better picture of what was going on?
6. Would you describe for me exactly what happened as a result of your action?
7. Does the entire situation, as we have discussed it, illustrate something specific that you believe about teaching?

State: ["End of observation "____."]

APPENDIX F

TEN BROAD CATEGORIES AND FORTY-FIVE
CLASSIFICATIONS OF FOCUSED
OBSERVATIONS DRAWN FROM
THE MOTT STUDY MODEL

CLASSIFICATIONS

1. Planning
 - 1.1 Planning for learners
 - 1.2 Planning with learners
 - 1.3 Adapting plans
 - 1.31 Modifying expectations about the group
 - 1.32 Modifying expectations about the individuals
 - 1.33 Taking advantage of immediate situations
 - 1.34 Modifying procedure during implementation
 - 1.4 Organizing learning activities
2. Selecting and Utilizing Materials
 - 2.1 Organizing materials required for planned lesson
 - 2.2 Improvising materials as situation demands
 - 2.3 Selecting materials appropriate for a needed area of instruction
3. Motivating (stimulating learning)
 - 3.1 Motivating of group learning
 - 3.2 Motivating of individual learner
4. Telling
 - 4.1 Giving directions to . . .
 - 4.11 the individual
 - 4.12 the group
 - 4.2 Providing needed information for . . .
 - 4.21 the individual
 - 4.22 the group
5. Helping Learners Find Meaning Through . . .
 - 5.1 concrete illustrations or experiences
 - 5.2 other associations
 - 5.3 critical thinking
 - 5.4 creative thinking
 - 5.5 review
6. Developing A Secure Classroom Environment
 - 6.1 Building self-confidence in learners
 - 6.11 Enhancing self-concept
 - 6.2 Establishing accepting environment
 - 6.3 Reducing emotional tension
 - 6.4 Respecting concerns of the pupil group

7. Individual Differences

- 7.1 Allowing for variations among children
- 7.2 Designing instruction for differences among children
- 7.3 Building and encouraging respect for variations or differences
- 7.4 Coping with the occasional emotional upsets of children

8. Behavior Control (discipline)

- 8.1 Encouraging certain behaviors
 - 8.11 subtle procedures
 - 8.12 overt procedures
- 8.2 Discouraging certain behaviors
 - 8.21 subtle procedures
 - 8.22 overt procedures

9. Evaluating

- 9.1 Establishing an indication of accomplishment for the learner
- 9.2 Encouraging self-evaluation
- 9.3 Relating evaluation to future planning
- 9.4 Assessment of learners and learning

10. Management

- 10.1 Caring for physical comfort and health of pupils
- 10.2 Caring for materials and properties
- 10.3 Caring for safety of pupils
- 10.4 Providing for orderly pupil movement
- 10.5 Keeping distractions and interruptions at a minimum

APPENDIX G

PRESENTATION OF DATA INDICATING UNACCOUNTED
FOR DIFFERENCES ON PRETEST AND POST-TEST
SCORES OF THE FOUR TREATMENT GROUPS
ON PSYCHOLOGICAL SCALES REPRESENT-
ING THE SEVERAL RESPONSE SYSTEMS

TABLE G.1.--Means, standard deviations, difference in means and simple correlations for the combined treatment groups on five psychological scales used to tap the motivational system.

Scale	Pretest*		Post-Test*		Difference in Means	Simple Correlations
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Intraception	14.56	3.88	14.24	4.29	-.32	0.692**
Factor A	12.86	2.90	13.19	3.44	+.33	0.660**
Factor I	12.27	2.38	12.56	2.80	+.29	0.713**
Factor M	12.69	3.39	12.94	2.99	+.25	0.575**
Factor Q1	9.42	2.68	9.41	2.68	-.01	0.494**

*N=108

**p < .01

Variable Code	Verbal Description
PAD53W12:	Post-test--Number of <u>A</u> and <u>D</u> Endorsements on Focused Observation 53, with 12 Alternatives Listed.
PBC53W12:	Post-test--Number of <u>B</u> and <u>C</u> Endorsements on Focused Observation 53, with 12 Alternatives Listed.
PAD214 12:	Post-test--Number of <u>A</u> and <u>D</u> Endorsements on Focused Observation 214, with 12 Alternatives Listed.
PBC214 12:	Post-test--Number of <u>B</u> and <u>C</u> Endorsements on Focused Observation 214, with 12 Alternatives Listed.
P6MAAD53:	Post-test--Number of <u>A</u> and <u>D</u> Endorsements of 6 Managerial/Academic Alternatives Listed on Focused Observation 53.
P6MABC53:	Post-test--Number of <u>B</u> and <u>C</u> Endorsements of 6 Managerial/Academic Alternatives Listed on Focused Observation 53.
PMAAD214:	Post-test--Number of <u>A</u> and <u>D</u> Endorsements of 6 Managerial/Academic Alternatives Listed on Focused Observation 214.
PMABC214:	Post-test--Number of <u>B</u> and <u>C</u> Endorsements of 6 Managerial/Academic Alternatives Listed on Focused Observation 214.
P6PSAD53:	Post-test--Number of <u>A</u> and <u>D</u> Endorsements of 6 Psychological/Social Alternatives Listed on Focused Observation 53.
P6PSBC53:	Post-test--Number of <u>B</u> and <u>C</u> Endorsements of 6 Psychological/Social Alternatives Listed on Focused Observation 53.
PPSAD214:	Post-test--Number of <u>A</u> and <u>D</u> Endorsements of 6 Psychological/Social Alternatives Listed on Focused Observation 214.
PPSBC214:	Post-test--Number of <u>B</u> and <u>C</u> Endorsements of 6 Psychological/Social Alternatives Listed on Focused Observation 214.
PDIF53 12:	Post-test--Ease/Difficulty Experienced in Endorsing 12 Alternatives Listed on Focused Observation 53.
PDI214 12:	Post-test--Ease/Difficulty Experienced in Endorsing 12 Alternatives Listed on Focused Observation 214.

FIGURE G.1

Legend for Fourteen Criterion Variables Measured by Criterion Instruments 53 and 214 with Twelve Alternatives Listed by the Researcher, and Presented in Table G.2, Table G.4, and Table G.7.

TABLE G.2.--Post-test simple correlations for all students in the four treatment groups on fourteen criterion variables¹ and five psychological scales used to tap the motivational system.

Criterion Variables*	Intra-ception*	Factors*			
		A	I	M	Q1
PAD53W12	-.039	-.045	.012	.063	.085
PBC53W12	.039	.045	-.012	-.063	-.085
PAD21412	.020	-.057	.062	.109	.013
PBC21412	-.020	.057	-.062	-.109	-.013
P6MAAD53	-.128	.038	.028	.026	.089
P6MABC53	.142	-.047	.024	.001	-.052
PMAAD214	.045	.022	.123	.072	-.019
PMABC214	.062	-.080	-.094	.033	.022
P6PSAD53	.107	-.135	.099	.131	.075
P6PSBC53	-.107	.135	-.099	-.131	-.075
PPSAD214	.159	-.063	.029	.076	-.005
PPSBC214	-.055	.169**	.005	-.074	-.057
PDIF5312	.103	-.168**	-.180**	-.050	.106
PDI21412	.113	-.307***	-.176**	.020	.198**

¹From two criterion instruments on which alternatives were listed. Scores on only the post-test were available.

*N=108

**p < .05

***p < .01

TABLE G.3.--Means, standard deviations, difference in means and simple correlations for the combined treatment groups on three orientations and two vocational values used to tap the attitudinal system.

Orientations and Vocational Values	Pretest*		Post-Test*		Difference in Means	Simple Correlations
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
<u>Orientations</u>						
Self	23.63	5.42	23.64	5.37	+0.01	0.664**
Interaction	28.75	5.54	29.77	5.58	+1.02	0.692**
Task	28.62	5.83	27.59	6.29	-1.03	0.729**
<u>Vocational Values***</u>						
Relations with Others	3.19	1.65	3.28	2.09	+0.09	0.303**
Service to Others	3.58	2.26	3.56	2.29	-.02	0.482**

*N=108

**p < .01

***Due to the instructions employed, the lower the mean, the higher the ranking of the value.

TABLE G.4.--Post-test simple correlations for all students in the four treatment groups on fourteen criterion variables¹ and five personality scales used to tap the attitudinal system.

Criterion Variables*	Orientations*			Vocational Values*	
	Self	Inter-action	Task	Relations with Others	Service to Others
PAD53W12	.155	-.015	-.119	-.068	-.179**
PBC53W12	-.155	.015	.119	.068	.179**
PAD21412	.179**	-.112	-.053	.021	-.184**
PBC21412	-.179**	.112	.053	-.021	.184**
P6MAAD53	.104	.051	-.135	-.067	-.166**
P6MABC53	-.123	-.073	.170**	.094	.153
PMAAD214	.110	-.052	-.048	.054	-.054
PMABC214	-.127	.062	.054	-.089	.040
P6PSAD53	.102	-.101	.003	-.064	-.103
P6PSBC53	-.102	.101	-.003	.064	.103
PPSAD214	.077	-.071	-.004	-.079	-.253***
PPSBC214	-.031	.138	-.101	.014	.242***
PDIF5312	-.076	-.187**	.231**	.091	.070
PDI21412	-.081	-.205**	.251***	.121	.147

¹From two criterion instruments on which alternatives were listed. Scores on only the post-test were available.

*N=108

**p < .05

***p < .01

TABLE G.5.--Means, standard deviations, difference in means, and simple correlations for the combined treatment groups on three self-concept ratings used to tap the self system.

Self-Concept Ratings	Pretest*		Post-Test*		Difference in Means	Simple Correlations
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
MYSELF	9.50	3.49	10.81	3.57	+1.31	0.688**
MY IDEAL SELF	15.49	2.56	15.93	1.66	+0.44	0.469**
MYSELF AS A TEACHER	15.99	1.86	16.07	1.64	+0.08	0.404**

*N=108

**p < .01

TABLE G.6.--Means, standard deviations, number of discrepancies, difference in raw numbers and means, and simple correlations for the combined treatment groups on three self-concept ratings, pretest and post-test, considered in comparison to each other.

Rating	Discrepancy				Number of Discrepancies		Reduction in Discrepancies		Pretest-Post-Test Discrepancy	
	Pretest*		Post-Test*		Pre-test Sum	Post-Test Sum	Raw Number	$\bar{X}$	Simple Correlation	
	$\bar{X}$	S.D.	$\bar{X}$	S.D.						
MYSELF versus - MY IDEAL SELF	6.21	3.39	5.23	3.29	671	565	-106	-0.98	0.588**	
MYSELF versus MYSELF AS A TEACHER	6.29	3.49	5.43	3.45	701	586	-115	-0.86	0.651**	
MY IDEAL SELF versus MYSELF AS A TEACHER	1.33	1.91	1.06	1.40	144	115	-29	-0.27	0.222***	

*N=108

**p > .01

***p < .02



TABLE G.7.--Post-test simple correlations for all students in the four treatment groups on fourteen criterion variables¹ and three self-concept ratings used to tap the self system.

Criterion Variables*	Self-Concept Ratings*		
	MYSELF	MY IDEAL SELF	MYSELF AS A TEACHER
PAD53W12	.080	.013	.104
PBC53W12	-.080	-.013	-.104
PAD21412	-.132	-.085	.069
PBC21412	.132	.085	-.069
P6MAAD53	-.022	.003	.042
P6MABC53	-.021	.016	.015
PMAAD214	-.053	-.058	.075
PMABC214	.071	.043	.008
P6PSAD53	.043	.003	.163**
P6PSBC53	-.043	-.003	-.163**
PPSAD214	-.090	-.051	.114
PPSBC214	.107	.097	-.044
PDIF5312	-.142	.032	-.034
PDI21412	-.119	-.016	.013

¹From two criterion instruments on which alternatives were listed. Scores on only the post-test were available.

*N=108

**p < .05

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