A MODEL FOR AN IN-SERVICE PROGRAM FOR TEACHERS
OF EDUCABLE MENTALLY RETARDED CHILDREN:
A PROCESS APPROACH

by

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This study is dedicated to the concept of continuous professional improvement of teachers.

K.A.M.
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CHAPTER I

THE PROBLEM AND DEFINITION OF TERMS

Introduction

In-service education has historically been, and continues to be, a means by which schools can continue providing for the professional growth of their staff (Godd, 1959).

Professional growth of teachers cannot be expected to take place automatically. It is a process which, for the most part, takes considerable effort on the part of school districts. School districts that are willing to expend the effort necessary to insure the development of an in-service program which is in line with the needs of the district can accomplish much in the way of providing for the professional growth of their staff. Such an in-service program, it is believed by the writer, should: (1) be based on the needs of the teachers and be consistent with the values expressed in the district's philosophy, (2) incorporate those aspects of past in-service programs which literature and experience indicate have been beneficial, (3) include methods and techniques which use has shown to have merit as well as methods and techniques which are consistent with how learning takes place, and (4) provide relevant means of assessing the programs.

From this writer's personal experience and from a review of the literature, it seems apparent that in-service programs for regular classroom teachers as well as teachers of the mentally retarded may have included one or two of these characteristics, but no programs reviewed included all four. In addition, the programs described in the literature seemed to lack systematic developmental procedures as well as
Implementation plans nor did they contain evidence of having a design which included a comprehensive means of assessing whether or not the in-service program was successful. Success, as employed here, refers to the attainment of the in-service program's aims, goals, and objectives.

**Definition of Terms**

The definitions presented here are being given to convey the writer's intent in their use in this study.

**Methods**

*Teaching*) Refers to procedural aspects of teaching a discipline (i.e., methods of teaching reading may involve large group instruction, small group instruction, etc.)

**Techniques**

*Teaching*) Refers to the "act" of teaching. More specifically to the acting used by the teacher in her role of a teacher (i.e., discussion, lecture, interaction, etc.)

**Presentation**

Refers to those aspects of in-service programs characterized by consultant or teacher talking to the participants about materials, methods, or techniques.

**Demonstrations**

Refers to situations in which the consultant or teacher "shows" the participants how the material, methods, or techniques should be used.

**Mentally Retarded**

A classification of children based on an intelligence quotient range between 50 and 79 as measured on the Revised Stanford Binet Intelligence Scale L-M, 1960.
Professional Growth . . . . Accumulation and modification of knowledge attitudes, skills, and understandings.

Knowledge . . . . Accumulation of skills needed to use methods, techniques, and materials.

Attitudes . . . . Feelings toward or about someone or something, specifically students and teaching.

Statement of the Problem

One problem which this study attempted to resolve was the development of an in-service program model which would eliminate the shortcomings of past in-service programs by incorporating those aspects of in-service programs which literature indicates might promote professional growth in teachers while also including some new aspects which have not been used in the past, but which are consistent with how learning takes place.

A second problem was to implement a trial demonstration of the in-service model and to evaluate the effectiveness of the model in promoting professional growth in the teachers who participated in the study.

The study also sought data on a corollary question which was whether or not the above in-service program model was beneficial as a learning setting for mentally retarded children.

Null Hypotheses

This study was conducted to investigate whether the designed in-service model might result in professional growth in teachers of mentally retarded children while at the same time being beneficial to
the children who participated in the program. In order to conduct this investigation, the following null hypotheses were tested. The alpha level of significance for acceptance or rejection of each hypotheses was set at the .05 level.

\[ H_1^0 = \text{No significant changes will take place in the attitudes of the teachers who take part in the program.} \]

\[ H_2^0 = \text{There will be no significant correlation between the mean achievement changes in reading of the different groups of children and the mean attitude change of the groups of teachers.} \]

\[ H_3^0 = \text{There will be no significant correlation between the ratings of teacher's use of materials made by supervisors and the attitude change of the teachers.} \]

\[ H_4^0 = \text{There will be no significant correlation between the ratings of teacher's use of materials made by peers and the attitude change of the teachers.} \]

\[ H_5^0 = \text{There will be no significant differences between the attitude changes of the teachers (1) who received their pre-service preparation in teacher's colleges and those trained in universities, (2) who have only three years of teaching experience and those who have over three years of teaching experience, and (3) who have Master's degrees and those who don't.} \]

\[ H_6^0 = \text{No significant changes will take place in the reading (word recognition and pronunciation) achievement level of the students who take part in the program.} \]
\( H_7 \): There will be no significant differences in the achievement gain in reading of the students who are grouped heterogeneously or homogeneously by either IQ or sex.

\( H_8 \): No significant correlation will be found between students' IQ and their achievement score change in reading.

\( H_9 \): No significant correlation will be found between the CA of the student and the achievement score change in reading.

\( H_{10} \): There will be no significant correlation between the ratings of the teacher's use of materials whether made by supervisors or peers.

\( H_{11} \): No significant change in the teachers' attitudes will take place after seven months have elapsed following the end of the in-service program.

\( H_{12} \): There will be no significant change in the reading achievement of the students seven months following the instructional part of the in-service program.

**Need for the Study**

Little information, and practically none on in-service programs for teachers of the mentally retarded was found, by the writer, to be available on in-service education and its value as a means of bringing about professional growth in teachers. This lack of information alone should be sufficient to justify undertaking the study, for the information obtained would provide contemporary data. To stop here, however, would add little improvement to the area of in-service education. The available literature which points out glaring shortcomings in past in-service programs indicated that an attempt should be made to try and
overcome these shortcomings in an effort to develop a more effective and comprehensive in-service program (Harris and Bessent, 1968; Goodlad, 1970; Shaplin, 1961; Meyen, 1969; Frazier, 1959; Hermarowicz, 1966; Leavitt and Mueller, 1951; Harris, 1963; Edmonds, Ogletree, and Wear, 1963; Denemark and MacDonald, 1967; Wood, 1950; Corey, 1957).

Characteristic of the shortcomings of in-service programs noted in the literature are the following:

1. Failure to relate aims, goals, and objectives to the needs and values of the district and staff.
2. Failure to provide for individual differences of the participants.
3. Failure to select appropriate activities for implementing program plans.
4. Failure to provide other than authoritative leadership.
5. Failure to choose material in relation to the need established for the in-service program.
6. Failure to provide for objective as well as subjective evaluation of the program's effectiveness.
7. Failure to use time wisely.
8. Failure to use or select instructional personnel wisely.
9. Failure to use instructional methods wisely.
10. Failure to provide in-service program with sufficient staff and resources to assure effectiveness.

The preceding identified shortcomings in in-service professional improvement programs support this writer's contention that there is a real need for a study which would develop an in-service model which met the following criteria:
1. Development and implementation procedures which
   a. contain those aims, goals, and objectives which are related to the needs and values of the participants,
   b. provide for the individual differences of the participants,
   c. employ other than authoritative leadership,
   d. base material selection on the needs established for the program,
   e. use time wisely,
   f. provide for wise selection of instructional personnel,
   g. provide for wise use of instructional methods,
   h. provide sufficient staff and resources.

2. Assessment procedures which
   a. would provide an assessment of the effectiveness of the in-service program in developing professional growth,
   b. provide for both subjective and objective means of gathering data,
   c. would provide means of assessing the aims, goals, and objectives of the in-service program,
   d. would be simple to administer and interpret.

Purpose of Study

The primary purpose of this study has been to develop and implement an in-service program model, which was designed to eliminate shortcomings noted in past in-service programs and one which would provide for the professional growth of teachers of educable mentally retarded children.
A secondary purpose has been to conduct an investigation in order to determine if the in-service model might also serve as an effective means of providing remedial services to the children who participated (educable mentally retarded) in the application of the in-service program model.

**Rationale for the Study**

The rationale for the study lies in the need for professional in-service programs in general and the need to improve these in-service programs as indicated earlier in this chapter.

It was assumed, considering the significance of these two needs, that if the shortcomings were eliminated, an in-service program could be developed which would provide a more effective means of providing for the professional development of teachers of the educable mentally retarded child, while at the same time furthering the education of the young learners involved.
CHAPTER II

THE PROBLEM IN RELATION TO PREVIOUS RESEARCH

Introduction

Providing for the professional growth of teachers "in the field" is historically a relatively new endeavor. Many programs designed to provide for the professional growth of teachers are described in the literature, but this review shall be primarily concerned with only one of these programs, the in-service program.

Reviewing the literature for this study was made more difficult due to the limited amount of material available, not only on in-service programs per se, but in-service programs for teachers of the mentally retarded child in particular. Due to this scarcity of available literature on in-service programs for teachers of the mentally retarded, the majority of the references cited were for in-service programs for regular classroom teachers.

Principally, the review of literature has been on topics of: (1) need for in-service programs, (2) shortcomings of in-service programs in the past, (3) activities found to be successful in past in-service programs, (4) activities which might be included in in-service programs, which are consistent with theories of learning, and (5) methods used to evaluate in-service programs in the past.

Need for In-service Programs

Continuing professional education in the United States is a relatively new endeavor for the professional growth of teachers. As late as the middle of the nineteenth century, community leaders and
leaders of the nation decided that there was a definite need to provide training for the inadequately trained classroom teacher (Sweet, 1848). A later example of this need was evidenced by the fact that in 1908, in Kansas, of the 11,255 teachers attending an institute, only 25% of them were high school graduates and only 10% of this number had taken work beyond high school (Ruediger, 1966).

Teachers institutes were among the first programs developed with the intent of improving the competency of teachers. These institutes were more commonly referred to as Normal Schools, their primary objective being to provide training for individuals who were teaching, but were not prepared in the Common Schools of that time (equivalent to our present day University) (Sweet, 1848). Their effectiveness in providing training was evidenced by the fact that by 1930 some 33% of the nation's teachers had attended the equivalent of two years of college (Common School training) (Frazier, 1938). Although our teacher training programs have progressed, at least in terms of numbers, since the early part of the nineteenth century (Learner, 1970), contemporary literature is still recording the need to either completely reconstruct or augment teacher training programs. The writers who point to the need to reconstruct or augment the teacher training programs point to various underlying factors which contribute to this need. One of these factors involves the need for teachers to keep up with the social and cultural changes taking place in our society (Denemark, 1967; Corey, 1957). It is very difficult today to read a contemporary text in education which does not point to the fact that our cultural and social existence is changing and that there is a need for education to change with it (Denemark, 1967; Corey, 1957; Morphet and Ryan, 1969; Morphet and
Jesser, 1967; Silberman, 1970). Implications in these writings are that teachers, as they accumulate teaching experience, tend to not keep up with social and cultural changes. To illustrate the extent of the possibility of teachers of today being "behind the times": in 1964 over 50% of the teachers in the United States had taught 10 years or more. Their training, if no subsequent in-service programs had been provided, was obtained at a period in time which might socially and culturally be different from that in 1964. More contemporary figures point out that in 1969 some 47.7% of the teachers in the United States had 10 or more years of teaching experience (Learner, 1970). These figures would tend to indicate, if the implications made above are true, that there is the possibility that a considerable number of our teachers today are more than ten years behind socially and culturally (insofar as their training is concerned).

Characteristic of the additional reasons which have been advanced for the need for in-service programs are those cited by Hass (Henry, 1957), which were:

1. Pre-service education cannot adequately prepare members of the public school professional staff for their responsibilities.

2. Increase in pupil enrollment.

3. The present and continuing increase in the number of teachers.

4. The present and continuing shortage of adequately prepared teachers.

5. The present and continuing need for improved school leaders.

and those cited by Harris and Bessent (1969), which were:

1. Pre-service preparation of professional staff members is rarely ideal and may be primarily an introduction to professional preparation rather than professional preparation as such.
2. Social and educational change makes current professional practices obsolete or relatively ineffective in a very short period of time. This applies to methods and techniques, tools, and substantive knowledge itself.

3. Coordination and articulation of instructional practices requires changes in people. Even when each instructional staff member is functioning at a highly professional level, employing an optimum number of the most effective practices, such as instructional programs, might still be relatively uncoordinated from subject to subject and poorly articulated from year to year [p. 3].

As was pointed out earlier in this chapter, the quantity of literature pertaining to in-service programs for teachers of the mentally retarded child is limited. The literature pertaining to the need for in-service programs for these teachers is even more limited. From the information available, it would appear that the poor instruction of the mentally retarded child is, as Meyen (1969) states, "related to the frequent omission of effective in-service training for teachers of the mentally retarded [p. 353]."

**Shortcomings of In-service Programs in the Past**

Criticism of in-service programs tended to center around four basic faults: (1) they have failed to relate to the groups they were intended to serve, (2) no purposes were established for the activities included in them, (3) they were inadequately supplied with staff and resources, and (4) they lacked adequate evaluation of their effectiveness (Frazier, 1959; Hermanowicz, 1966).

Reasons usually given for the lack of relating the in-service programs to the needs of the participants are summarized by Harris and Bessent (1969), who wrote:

A major theme in nearly all writings for many years has centered on the notion that the needs of teachers and other staff members should be central to all in-service efforts. Practice still violates this basic idea in many ways:
1. Sometimes in-service programs are dictated by the superintendent, school board, principal, or other officials with only superficial consideration of the staff needs.

2. Individual differences are widely ignored. Even when real interests reflecting real needs of groups are identified, the variations within a staff group are great, and simple in-service programs designed for uniform participation cannot suffice.

3. Careful evaluations of a program in progress and its termination are rarely undertaken to determine the degree to which needs are being met [p. 3].

The in-service programs usually do not include activities appropriate for implementation. In many instances the activities chosen, even though they might be considered good (lectures and staff meetings), tended to be used in excess (Frazier, 1959; Leavitt, 1951). In addition, there seems to be little consideration given to the purposes for including a particular activity (Harris, 1963).

Often in-service programs obtained instructional personnel (consultants) who were asked to perform functions for which they were unqualified. College professors were often asked to participate and to present a portion of the program as a result of their academic "status," but often they were unable to "produce" (Edmonds et al., 1963). Time is another resource which is usually not used effectively. The usual shortcomings of in-service programs, where time is concerned, involves using short one hour meetings after school, when teachers are tired, to conduct some instruction. It is felt that these short meetings will not suffice (Harris and Bessent, 1969).

In addition to the above resources used in in-service programs, the material used is often used ineffectively. More often than not materials are chosen independent of their need. The usual method of choice reported to be used is that, "somewhere, somehow they may find some use for the material in the program" (Edmonds, 1963)[p. 25].
The lack of detailed information pertaining to the value of in-service programs is pointed out in the writings of Harris and Bessent (1966, p. 4). The lack of information relative to the value of in-service programs is further supported by Denemark and MacDonald (1967). In most of the studies reviewed subjective evaluation was the only method used to measure the value of the in-service programs. This face and the fact that there is a need for more objective methods of evaluation is supported by Wood (1950), Harris and Bessent (1969), and Corey (1957).

Activities Found To Be Successful
In Past In-service Programs

Reviewing the literature for this section was very difficult due to the lack of conclusive evidence that the in-service programs using various activities were successful or that certain activities themselves were successful. Due to this shortage, the writer has provided the reader with an overview of the practices and trends in in-service activities which support the assumption that through the frequency and extent of their use relative success was achieved. Before going into this, however, a brief indication of the extent and variety of in-service activities will be presented.

Activities which have comprised an important part of in-service programs have been quite varied. The extent of this variety is described in the study by McMahon (1954). In her study of six school systems she found that in-service programs conducted by these districts included fifty-four different types of activities. The variety of activities in in-service programs conducted for teachers of special children is contained within the report by Kass (1968). She reports that the summer sessions and institutes conducted for the training of teachers
of special children contained some ten or fifteen different activities. Among these were the following: introduction to the use of technology, presentations of theory behind teaching special children, teacher-teacher exchange of ideas, study of community relations, teacher-administrator discussion of problems involved in teaching special children, evaluation of research, direct contact with researchers for discussions, observation of master teacher, teaching practicum, workshops, and demonstrations. Meyen (1969) reported the program for the training of teachers of the mentally retarded child in Iowa contained the following activities: demonstration of materials, presentation of instructional techniques and methods, some production of materials, and teacher-teacher discussions.

Hass (Henry, 1957) points out that the new teacher orientation was the most widely accepted in-service education program. In this type of program new teachers are introduced to the administration and given an orientation to the rules, regulations, and responsibilities of the staff. Stress, in most programs of this nature, is placed on the "esprit de corps" for the sake of providing an atmosphere in which the students can feel comfortable [p. 32].

Promising practices in in-service education, reported by the National Commission on Teacher Education and Professional Standards (NCTEPS), as a result of an analysis of 397 reports on in-service practices included the following trends: more released time during the day for in-service programs, pay for "out-of-school" time, extension of the school year to provide in-service program time, use of school personnel to provide in-service programs, and participants' involvement in the planning of in-service programs (Brandt, 1965).
These trends are also in evidence in the reports of other in-service activities. Among these is the NEA report on a survey of 307 school system's in-service activities. This report lists thirteen in-service activities which the teachers in these systems were permitted to engage in which would meet the requirements for professional development. These activities included college courses, workshops or in-service training sponsored by school systems, travel, noncredit courses or institutes not sponsored by school systems, research, committee service in school system, professional writing, attendance at professional meetings, supervision of student teaching, holding office in professional association, committee work in professional association, community projects, and work experience. It should be pointed out that not all of the activities listed were deemed acceptable by all of the systems reporting. The only activity which 100% of the school systems accepted was the one in which the teachers engaged in college courses. Eighty-one percent of the systems accepted workshops or in-service training sponsored by school systems and 66.8% accepted travel. The remainder of the activities were accepted by less than 50% of the systems (NEA, 1967).

Other writers who reported similar activities as those listed above were Frazier (1959), Leavitt (1951), Harris (1963), Richey (Henry, 1957), Hass (Henry, 1957), Ream (1966), and Shaplin (1961).

**Activities Which Might Be Included Which Are Consistent with Theories of Learning**

One ingredient which the literature on learning theory has indicated is important in the learning process, and one which might be relevant to in-service programs, is involvement. Involvement, as it is used here, means having the teachers assume an active part in the learning
process. One way in which this might be accomplished is by having the teachers actually put to use what they have learned in a practice setting. The value of practice in facilitating learning is pointed to in an article by Osgood (1949) in which he traces the "interference" concept proposed by J. A. McGeoch (1942), Johnson (1933), and G. O. McGeoch (1937) and the maximal facilitation concept which he advocates. In this article Osgood reviews the studies which have been conducted to prove or disprove the concept that similarity of stimuli in a learning situation inhibits transfer and retroaction (retention).

The extensive review by Osgood (1949) and the conclusions arrived at tend to resolve the paradox that "ordinary learning is at once the theoretical condition for maximal interference, but obviously the practical condition for maximal facilitation" (p. 137) by reaching the conclusion that, as the stimuli in a learning situation comes close to identity (exact similarity), the facilitation of transfer and retroaction increase in a "smooth, unbroken sequence of transfer and retroaction with the factor of interference falling [p. 140]."

It would appear, based on Osgood's findings, that learning is facilitated when the material to be learned is learned in a setting reaching identity. This conclusion would support the assumption that practice would be an important ingredient to include in an in-service program. The importance of this ingredient for teacher training has been given further emphasis by McIntyre (1967), Shaplin (1961, p. 26), and Harris and Bessent (1969, p. 10).

Somewhat in agreement with Osgood, but looking at the specific elements of learning in relation to in-service in a different light, Edmonds (1963) believes that an in-service program must concern itself
with perceptual modification (behavior modification) of the individual participant. It is his belief that in order for this modification to take place the individual must be provided with experiences in which he sees himself as a person who is free to: (1) explore and develop his own values, (2) explore those interests he values as important, (3) have the opportunity to examine his perceptions and compare them with others, (4) have the opportunity to be himself and to respect those who differ from him, (5) have the opportunity to learn for real use rather than to learn isolated facts, (6) have the opportunity to use people, places, things, and events as resources for having new experiences, and (7) have leadership which facilitates rather than dominates. The experiences which were recommended here were further supported as activities which influence learning in the extensive review of research into learning which was edited by Hunt (1967).

Further information pertaining to the use of practice and more specifically the laboratory type of in-service program and its relation to learning theory were found in the writings of Harris and Bessent (1956). In their writing they listed what they considered to be seven "key" factors which facilitate learning --factors which they considered would be facilitated by the laboratory (practice) type of an in-service program. The "key" factors presented were interest, involvement, success, feedback, discovery, stress, and transfer. It was their feeling that the realistic setting of practice tended to stimulate interest, and the laboratory type in-service program could be easily developed which would make it difficult for the participants to avoid involvement. It was further their opinion that through freedom of response and through structured activities, success could be assured, and through prompt
feedback interest could be maintained while also providing for the full value of feedback. The writers alluded to the fact that if the participants were involved in dealing with real problems, becoming involved, and evaluating the outcome of their efforts they would naturally become involved in the discovery method of reaching conclusions concerning that which they were to have learned (which they considered valuable in the learning process). Stress, they felt, would be decreased if the participants were made aware that their performance in the program was not to be recorded for other than their use. The element of transfer, according to the authors, could be facilitated by increasing the similarity between the laboratory (practice) sessions and the classroom setting (similar to the findings reported earlier).

The relationship between the above and learning find support in the literature concerned with motivation and learning (Bhatnager, 1965; Feather, 1968; Kahoe, 1966). This is evidenced in that some of the terms used above are also used as designations of various aspects or classes of motivation (English and English, 1958).

The significance of the importance of motivation in learning was expressed in the article of Wallen and Travers (Gage, 1963) in which they identified their second principle of learning, which was:

The introduction of cues which arouse motivation toward the achievement of an educational objective will increase the effectiveness with which that objective is achieved [p. 495].

One factor relating to learning which is revealed in their writing is that the variable of anxiety may have arousal properties. Studies relating to anxiety in learning seem to indicate that the effect of anxiety might be dependent upon the individual and/or the task to be performed (Scharf, 1964; Kathan, 1966). One of the significant findings
of the studies in this area was that regardless of the level of anxiety in the individual, if the task was easy (less stress), the performance of the individual was not affected (Kathan, 1966; Lipsitt and Spears, 1965; Sassenrath and Knight, 1965). One way in which stress might be decreased has been proposed by Olson (1959). He proposed that a method of self-selection be used. In this method the individual is provided with considerable arousal (interest stimulation) cues. It was Olson's belief that through this method the worthwhile long term goals will eventually be achieved. Modern day educators, however, according to Wallen and Travers (Gage, 1963), do not believe in having extraneous stimuli in a learning atmosphere. The feeling was that it interfered with the learning process. There was, however, no conclusive evidence to refute the Rousseauian viewpoint proposed by Olson.

A method of instruction, which Wallen and Travers (Gage, 1963) consider disregards motivational variables such as those mentioned above, is the lecture method. They would tend to support the idea that the discovery method mentioned earlier in this section provides a more effective means of motivation. In addition, they point out that practical experience is the best method of developing problem solving skills. Studies which support this are characterized by those of Harlow (1949) and Kersh (1958).

The role of imitation in learning has also been explored through research. It was the finding of Miller and Dollard (1941) that imitation is a learned behavior and that without the acquired skill, imitation cannot occur. This finding would indicate that, as individuals differ in the learning capacities, there would also be differing levels of acquired abilities to imitate. It was further implied that learning is
more effective when the learner is actually performing the task to be learned. The importance of feedback to learning alluded to above has been treated in the literature pertaining to supervision of instruction.

Feedback in the past has usually been provided by supervisors which Yevish considered inadequate (Yevish, 1958). Until recently "live" supervision or something comparable was the only possibility available for purposes of obtaining feedback. With the development of the audio and video-tape recorders, a new dimension has been added to obtaining feedback from in-service programs. Teachers can now see and hear for themselves what they are or are not doing. The benefit of this self-appraisal is pointed out in the study conducted by Johnston (1969). Cooper (Cooper and Seldman, 1969), Milanovich (1966), and Pace (1944), would also agree that self-evaluation has great potential for the healthy modification or preparation of teachers.

The usefulness of the new media in providing elements of feedback from an in-service program was identified by Gallagher (1947) who said:

Feedback information about one's performance as a teacher has not been easy to obtain. . . The beginning steps have already been taken to apply such techniques in the classroom through the analysis of audio tapes and video tapes which allow teachers to observe themselves in action. . . [p. 446]

and by Denemark and MacDonald (1967) who wrote:

Another area meriting expanded attention in the future is the use of video-tape and other media as a facilitating link between foundational concepts in teacher education and the practice of teaching skills.

The inefficiency associated with instructional field observations and practice in teacher education can perhaps be reduced through skillful use of the new media by use of specific examples and to systematize practice around a theoretical framework [p. 242].

Support for the use of self-appraisal in in-service programs, specifically interaction analysis, is provided by Flanders (1962). Its
importance is further alluded to by Shaplin (1961) who wrote, "Training in self-analysis (of teaching) should be a primary objective in practice for most of teaching occurs in isolation from other critical adults."[p. 45]

Methods of Evaluating In-service Programs
In the Past

Material presented in an earlier section of this chapter indicated that one of the shortcomings of the in-service programs to date seemed to be the lack of detailed information relative to the value of such programs.

A further review of the literature revealed that information relative to the various techniques used in evaluating in-service programs is also very limited. The only comprehensive review indicated that evaluation was usually conducted through questionnaires, reaction sheets, or verbal comments by the participants and directors (NEA Research Bulletin, 1967). The in-service program developed by Meyen (1969) used essentially the same techniques. He reported using questionnaires, observations, and reports as means of evaluating programs.

Due to this limited information on methods employed in the evaluation of in-service programs, the author has attempted to provide a comprehensive base for developing an evaluation procedure for this in-service model. This was accomplished by reviewing aspects, related to the professional growth of teachers, which lend themselves to evaluation. Primarily the review centered around aspects related to teacher effectiveness.

The measurement of effective and successful teaching has been a problem which educators have been struggling with for quite some time (LaDuke, 1945). In many of the studies reviewed by this researcher,
there were usually two criteria proposed for an escape from this dilemma; they were: (1) the use of pupil gain and (2) teacher ratings. Pros and cons were presented in the literature for the use of both, but the arguments given for the use of student gain as a reliable and justifiable measure of the success and effectiveness of a teacher tend to be supported more thoroughly than do the arguments for ratings. Characteristic of this support for student gain was that found in the writings of Brookover (1945) and Anderson (1954). In both instances the authors suggest that, if the individual abilities and developmental levels of the students are taken into consideration, the amount of learning which results from particular teaching is a valid criterion of teaching ability. Ryan (1949) also supports the use of pupil gain as the most adequate measure of teaching effectiveness. As the result of a study of the criteria of teaching effectiveness, he concluded that "... pupil change is probably the most adequate of the criteria we may use in studying teaching effectiveness."

As a result of these findings, the remaining studies reviewed which report their findings relative to teacher efficiency or success will be reporting teacher success or efficiency in terms of student academic gain.

Evidence of the relationship between the achievement of students and the attitudes of teachers is reported in the following brief summaries.

Christensen (1960), in an effort to determine the relationship between pupil achievement and teacher warmth, found a significant relationship existing between vocabulary, arithmetic gains and teacher warmth. In this study the warmth of the teachers was determined by having the students rate their teachers relative to such items as, "Is your teacher easily annoyed or bothered?"
In addition to Christensen, Poffenberger (1956) concluded that the attitude of the teacher not only effects the achievement of students toward the subject (mathematics), but also greatly effects the attitudes of the students toward the subject.

Rochlo and Kearney (1956) considered the attitudes of teachers toward their students and the ability to maintain harmonious relations with them to be characteristics of teachers who were less likely to fail pupils. It was also their opinion that teachers who create an atmosphere of fear and tension and whose only interest is in covering the subject matter tend to have a high failure rate. In another study concerned with failure rate, Cook (1956) found a high failure rate for students whose teachers scored low on a teacher attitude inventory which measured the teacher's attitude toward his students and teaching. The correlations were found to be higher with the academic teachers than with those who taught non-academic subjects (i.e., music, art, etc.).

Additional studies which reported positive relationships between teacher attitudes and student achievement were those of Bush (1942), Rostker (1940), and Rolfe (1945)

**Summary**

The review of the available literature indicated various reasons for the need for in-service programs. Among these reasons were: (1) cultural and social changes, (2) inadequacy of pre-service training, (3) increase in pupil enrollment, (4) increase in the number of teachers, (5) lack of coordination between subjects, (6) need for improved school leaders, and (7) shortage of adequately prepared teachers.

The shortcomings of in-service programs which the review has identified included: (1) the absence of programs which related to the
needs of the teachers, (2) the lack of definite purposes for the activities used in such program, (3) inadequate and sometimes insufficiently qualified consultants, (4) inadequate use and selection of resources other than personnel, and (5) the lack of adequate evaluation procedures.

Activities which were indicated as having been successfully employed during in-service programs included: (1) workshops, (2) demonstrations, (3) college courses, (4) introduction to the use of technology, (5) presentation of teaching theory, (6) teacher-teacher discussion, (7) observation of master teacher, (8) demonstrations, and (9) production of materials.

The review of the literature on instructional activities which were deemed to be consistent with contemporary expressions of learning theory and therefore which might be included in an in-service program has indicated that a program might be more successful if it included: (1) the element of practice, (2) the chance for participants to be free from the stress of authoritative supervision, and (3) the chance for the participants to observe themselves and to evaluate their own effectiveness.

While there appeared to be a lack of information on methods used to evaluate past in-service programs, the review of the literature did present information on which the evaluation of an in-service program might be based. Among the suggestions identified were that measures of student academic gain and the attitudes of teachers as well as ratings be used in order to determine whether or not the program was successful in bringing about professional growth.

Another important ingredient, which the review of the literature indicated might be of benefit to the program, was that the program be conducted as near to identity as possible in order to facilitate retention.
CHAPTER III

MATERIALS AND PROCEDURES

Sources of Data

This chapter is intended to present the reader with information sufficient to allow replication of the study. The chapter provides the reader with information regarding the setting in which the in-service model program was originally applied. Information is also supplied which will: (1) describe the teacher and student population used in the study, (2) describe the data gathered, (3) describe the procedures used in gathering the data, and (4) describe the methods used in analyzing the data.

Setting

The school used for six weeks in the summer of 1970 was the Mary Harmon Weeks Elementary School. This school is one of the Kansas City Missouri School District's newest and most progressive schools. The school is located in the inner city section of Kansas City, Missouri, in a community setting which is considered culturally deprived. This setting (school) houses such conveniences for the teacher's and student's use as carpeting, air conditioning, a fully equipped auditorium, extensive audio visual materials, gymnasium, cafeteria, study carrels, teachers lounges, speech and hearing rooms, and "open space" classrooms. These "open space" classrooms were used for the in-service program because they were sufficient to house all of the students in one large room. In addition, the rooms are provided with restroom facilities for both boys and girls as well as drinking fountains.
The district in which the Mary Harmon Weeks Elementary School is located serves an urban population of approximately 400,000 people and is centrally located in a seven county metropolitan area which includes Jackson, Clay, Platte, and Cass counties in Missouri and Johnson, Leavenworth, and Wyandotte counties in Kansas (Good, 1970).

The area served by the district is approximately 79.75 square miles, has over 100 schools and over 74,000 students (Hazlett, 1968).

Programs for Handicapped Children. The district has a total of 183 professional personnel employed full-time to instruct or support the instruction of 6,815 handicapped children. Sixty-one of the teachers included in the above figure instruct the 1,830 students that are classified as educable mentally retarded. This represents approximately 2% of the district's 79,045 students (Siestsema, 1970).

Programs for the educable mentally retarded child in the elementary (grades 1-6) schools are located in twelve of the district's eighty-six elementary schools. The academic program for these children consists of what would normally be labeled a "paced" program in that the traditional program in certain content areas (i.e., reading, mathematics, etc.) is presented at a slower pace than that in the normal classroom. The children in these programs are separated from the normal classroom children in most of the school activities with the exception, in some schools, of recess, music and occasionally lunch time. Assignment of students to programs for educable mentally retarded children is similarly based on the mental age (MA) of the child while the actual placement into specific classes is based primarily on the chronological age (CA) of the child. This method, for the most part, results in classes which are very heterogeneous insofar as academic
ability is concerned (the range possibilities for placement is from an IQ of 50 to 79).

Innovations Within the District. The district has involved itself in many innovative attempts at developing better programs for their elementary school children. The Library-Resource Center concept that every elementary school should be equipped with resource materials sufficient to adequately supplement the programs being provided in the classroom was placed into operation in 1967. As new elementary schools were constructed, resource centers were included in their floor plans. The centers included:

1. Collections of curricular materials including books, periodicals, pamphlets, maps, charts, globes, art and study prints, filmstrips, magnetic tape and disc recordings as well as transparencies and the equipment necessary to make transparencies. In addition equipment needed to make posters as well as other projective materials.

2. Space for general reading and reference study as well as individual and group facilities for teachers and pupils use.

3. Facilities for teachers and students to prepare inexpensive instructional and learning materials.

To date 12 of these centers have been completed.

Beginning in 1966 the district began a concentrated effort to improve the instructional opportunities for the disadvantaged pupil. The programs developed for this purpose involved assigning teachers who had demonstrated exemplary ability in the instruction of disadvantaged students in reading to the elementary schools where there was a preponderance of disadvantaged children. In addition,
a continuous in-service program for teachers and administrators was
developed in order to maintain a continuous study of and preparation
for solutions to the needs of the school operations regarding the
disadvantaged child.

In-service Programs in District. Included in the programs cited above
are provisions for in-service training which are designed to prepare the
teachers for the programs being developed. The types of in-service
programs used in these and in other parts of the district's continuing
education program include activities such as: (1) seminars, (2) work-
shops, (3) contracted services with the University of Missouri at Kansas
City, (4) involvement of teachers in curriculum development, and
(5) committee planning activities (Hazlett, 1967) p. 16.

Each administrative and supervisory section of the school system
is responsible for involving its personnel in in-service activities.
The most extensive type of in-service program which is conducted by all
of the administrative and supervisory sections is the orientation
seminar. These seminars are conducted for personnel new to the district.
They involve presentations by various members of the district's
administrative and/or supervisory staff. These presentations include:
(1) acquainting teachers with their professional responsibilities,
(2) acquainting personnel with ancillary personnel and services,
(3) acquainting personnel with organization (line and staff) of the
district, and (4) answering questions which personnel might have
concerning personal activities (i.e., hall duty, monitoring cafeteria,
etc.)

The district's workshops usually involve having certain "target"
teachers (teachers to whom specific information is directed) become
acquainted with new methods, techniques, and materials through involvement with supervisors of the district. The involvement usually involves having the teachers "try" the materials under the supervision of a supervisor. These trials are usually conducted under hypothetical conditions (i.e., without students). In the case of equipment the involvement usually involves having the teachers practice using it with the objective being familiarization with the mechanical operation or procedural application. Again familiarization is achieved without its use with students.

In-service programs involving contracted services with the University of Missouri at Kansas City are usually designed for a specific purpose and usually involve a selected teacher clientele. An example of this would be the program entitled The Experienced Teacher Fellowship Program. This program was designed: (1) to improve the background of a specific number of teachers in mathematics, humanities, natural science, (2) to develop self-selected fields of specialization for each participant, and (3) to provide opportunity for participants to plan and create an innovative, exemplary elementary school. In this program attention was focused on three issues: (1) school organization, (2) curriculum development, and (3) instructional materials usage. Presentations were made through the lecture method and demonstrations by University personnel or consultants.

The in-service programs for the teachers of educable mentally retarded children are conducted in the same manner as those described above. Traditionally there is an orientation meeting for new teachers at the beginning of the school year and periodically groups of teachers will be called together to discuss problems which they or the district
teachers may be having. When new methods, techniques, or materials are introduced, they are usually done so by means of lectures in out-of-school settings. These settings are usually conducted after the regular school day. A result of some of the in-service programs recently (1970) has been the publication of a new curriculum guide for the teacher of educable mentally retarded children.

Population of the Study

Two subject groups were used for this study. A group of teachers was used in an effort to obtain a direct measure of the possible effect of the in-service model on professional growth. A group of students was used on this study in an effort to obtain an indirect measure of the effect of the model on the professional growth of teachers.

Teachers. Fifteen teachers who were or would be assigned to teaching children classified as educable mentally retarded participated in the in-service program. Their participation stemmed from an invitation for all teachers of the EMR child to apply for acceptance to participate in a six weeks summer (1970) workshop. The selected teachers represented only 10 of the district's 83 elementary schools. The experience of the teachers ranged from 1 year to 30 years. The type of teacher preparation institution which the participants attended also varied. Six received their preparation from Universities and nine from teacher's colleges or small liberal arts colleges. Only four of the teachers participating had been prepared to teach mentally retarded children while eight had prepared to teach on the elementary level and the remainder prepared to teach either on the secondary level or for other than instructional purposes (i.e. psychologists). The fact that 12 of the teachers had bachelor degrees while three had Masters degrees indicates the range and
extent of their professional preparation. All but one of the 25 participants were women.

Students. Thirty students were originally selected from children in the district whose age ranged between eight years and twelve years and had measured IQs of between 50 and 70. These limitations were made in order to provide a student population that would be relatively homogeneous in physical and mental development.

The actual selection of the children meeting the above criteria was made from a list of students whose parents indicated that they would be willing to have their child(ren) participate in the program.

The program began with only 25 of the original number. The reasons for this decrease were that some of the parents changed their minds and would not let their child attend or the family moved out of town. Table I contains a list of the 25 students who participated. The students are not listed in this table by name but are identified by an ID number. The table reveals that 11 of the students were girls and 14 boys. It also indicates that the CA (Chronological Age) range of the students was from 8.11 to 11.4 and their IQ (Intelligence Quotient) range was from 50 to 65. Though it is felt by this writer that the information regarding time of testing for the IQ of the students should in no way effect the results of the findings for this study, note should be made of the fact that there were a variety of time intervals between the time the IQ test was administered and the program began. The students' CA was computed as of the date on which the in-service program began.
TABLE I
STUDENT POPULATION

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Program

Development of In-service Model. The development of this in-service model involved employing a Curriculum Process Model (CPM) developed by Dr. Parley Rogers at the University of Kansas (See Appendix A) between 1966 and 1969. Though the Curriculum Process Model was intended to have a multiple use such as: (1) a "means" for examining alternate proposals for curriculum change, (2) determining the need for curriculum change, (3) the procedures to be employed in curriculum change, (4) maintaining balance in the curriculum, etc., it became apparent to
the author that it should also be applicable to the development of an in-service program which he was asked to develop. It should also be noted that a more recent version of the CP model has been developed by Dr. Rogers.

The initial step taken in the development of the in-service model involved applying Facet 1 of the CP model which entailed determining the values deemed important to the personnel in the district in which the experimental in-service program was to be implemented. As a basis for determining the district's values, the writer used the definition for values given in the Curriculum Process Model (Rogers, 1969) which was, "...those attitudes, skills, knowns and understandings about people, things, and ideas which we and our society hold to be of value in our culture." Using this definition the writer familiarized himself with: (1) the philosophy of the district, (2) the psychological view of the children and specifically the educable mentally retarded children which the special education department of the district held, (3) the sociological aspects of the society in which the teachers involved would function, and (4) how historically the district has viewed in-service programs for teachers of the mentally retarded child.

Familiarization with the above was accomplished: (1) through direct discussion with district administrators and staff and (2) through reading of district publications.

The values which seemed to be held in esteem by the district and which, it was felt, were applicable to the development of an in-service model were (not arranged in order of preference):

1. Education is a means by which man can control his own destiny.
2. Man must understand both his heritage and his potential as human being if he is going to cope with the changes which surround him.

3. Critical thinking is a necessary product of our educational system.

4. Theoretical content should not be separated from practical experience in our educative process.

5. Communication skills are the most important skills for educational success.

6. Constant study is by necessity a continual need of teachers.

7. Basic educational needs of all children are the same.

8. Educational characteristics of children differ as causal factors vary.

These values formed the foundation upon which the in-service model was developed (Diagram 1).

**DIAGRAM 1**

**STEP ONE IN DEVELOPMENTAL PROCESS (VALUES)**

Values-- (1)  (2)  (3)  (4)  (5)  (6)  (7)  (8)  Step 1

NOTE: The numbers represent the corresponding numbers for the values presented earlier.

The dotted lines in Diagram 1 denote that the next step in the development of the experimental in-service model has not been completed. Steps two, three, and four involved applying Facet II of the CPM This called for the development of aims, goals, and objectives (AOG) for the experimental in-service model.
In determining the aims of the in-service model it was kept in mind that the aim "is the least specific and most broadly conceived term which suggests the direction in which movement is desired (Rogers, 1969) p. 4."

Keeping in mind the values noted above, the AIM, "to improve the instructional program for educable mentally retarded children," was established for the experimental In-service model.

Diagram 2 represents the completion of Step 2 in the development of the experimental in-service model.

DIAGRAM 2

STEP TWO IN DEVELOPMENTAL PROCESS (AIMS)

The much narrower GOALS were then established in an effort to focus the in-service program into a specific area encompassed by the much broader AIMS. The primary GOAL of the in-service program was determined to be, "to teach a selected group of teachers of mentally retarded children to effectively use new educational materials." A secondary goal was, "to increase the reading skills (vocabulary and word recognition) of the educable mentally retarded children who participated in the program." This completed the third step in the development of the in-service model, and Diagram 3 represents this completion differentiating the primary (large circle) goal from the secondary (smaller circle) goal.
The next step in the development of the experimental in-service model involved applying the last phase of Facet III which was determining the specific objectives for the program. The "goal approach" recommended by McAshan (1970) for the development of instructional objectives was used for this purpose. The reason this method was used was because of its simplicity of design and interpretation. The process of developing the statements of objectives in behavioral terms when the McAshan approach is employed involved two steps: (1) a reiteration of the goals being sought and (2) a statement of the outcome or evaluation of the goal. At this point in the development of the objectives the writer employed a check to determine whether or not his objectives were complete enough to allow him to proceed. This check was accomplished by determining whether or not the goal component (presented earlier) contained: (1) a reference to the component which increases or improves when the behavior changes (program variable), (2) a reference to the learners involved, and (3) a reference to a behavioral domain. In addition, a check was made to determine whether or not the objectives included a statement of evaluation which would be thorough enough to provide the author with sufficient information to determine the amount
of success achieved through use of the experimental in-service model (McAshan, 1970). The check revealed that the objectives needed some revision and were finally considered acceptable. Broken into goal and evaluation components the behavioral objectives became:

Objective No. 1

Goal component: For the teachers who participated in the in-service model trial to develop skills necessary to use new instructional materials effectively,

Evaluation component: as determined by: (a) supervisory and peer ratings of their use of the material, (b) the gain in reading achievement (vocabulary and word recognition) of the educable mentally retarded children who participated in the trial as measured by the results of the scores obtained on the reading section of the Wide Range Achievement Test, and changes in the attitudes of the teachers toward aspects which are related to teacher effectiveness as measured by the scores obtained on the Minnesota Teacher Attitude Inventory (Cook, 1956).

Objective No. 2

Goal component: To improve the reading (vocabulary and word recognition) skills of the educable mentally retarded children who participated in the trial of the in-service model,

Evaluation component: as determined by pre and post measures of the reading achievement utilizing the Wide Range Achievement Test.

Diagram 4 represents the development procedures through Facet II of the Curriculum Process Model.
The next step in the development of the in-service model involved applying Facet III of the CPM. The task, at this point, specifically became one of trying to determine, from the values considered important by the district, what the district considered to be the role of the teacher and the learner. From these values it became clear that the district viewed the teacher as one source of information for the learner, but not the only source. It was also noted that the district viewed the relationship between the teacher and the learner as one which involves questioning and the development of critical thinking skills and not a relationship where the learner merely participates as a passive receptor of information being passed on by the teacher. The learning process, as viewed by the district, was one in which the practical should be combined with the theoretical.

In applying the CPM to the development of the in-service model it was necessary to consider the teachers who were to participate as learners in the CPM and the instructional personnel to be used in the in-service model as the teachers in the teacher-learner continuum.
Application of Facet IV became the next step in the development of the in-service model. Diagram 5 represents the developmental process up to this point.

![Diagram 5](image)

A slight change was made in the CPM by the writer at this point in that he included the "teaching techniques" as another aspect of instruction not included in Facet IV of the CPM developed by Dr. Rogers. It would be inappropriate to go into lengthy detail at this point as to why. The two terms which appear in Chapter I in the section on Definition of Terms should be sufficient to indicate the differentiation and also why both were included. The object, then, of this step in the developmental process became that of determining the methods, techniques, and materials which should be included in the program. This determination was based on: (1) the values which were considered important by the district, (2) the aims, goals, and objectives of the in-service model, (3) the view held by the district relative to the teacher-learner relationship, and (4) the information gained in the review of literature which indicated ways in which in-service program shortcomings in the past might be overcome in order to make in-service programs more effective.
Material selection. From the statements of the values which the district considered important, it became apparent that communication skill development was considered to be the most important area in the instructional program for children. Based on this the focus of the trial of the In-service model was placed on the development of communication skills, specifically, reading skills involving vocabulary and word recognition. The reason for selecting only one of the communication skills was that the amount of time for the trial (six weeks) was considered to be insufficient to involve more. Though reading was the specific communication skill selected, the materials chosen were materials which would also be applicable to the development of the other communication skills (listening, speaking, and hearing).

The first step in the actual selection of the material involved the compilation of a list of new instructional material which was designed for the development of reading skills of children with the characteristics of the children to be included in the program. Assistance in making up this list was obtained from the Special Education Instructional Materials Center located at the University of Kansas, Lawrence, Kansas. Additional assistance was obtained from the staff members of the Education Modulation Center located in Olathe, Kansas. This list was then submitted to the district's director of special education who indicated the material which the district's teachers of the educable mentally retarded were not familiar (See Appendix B). This list was also submitted to the teachers selected for the trial for verification of their lack of familiarity. Only one piece of instructional material was found to have been used by any of the teachers prior to the trial. Only two of the teachers in the program had used it,
and the use, according to them, was very limited.

A final evaluation was made of this material to determine if it was consistent with the values listed in Step 1 of the development process and to determine whether or not there was sufficient descriptive data to support the assumption that the material would help attain the aims, goals, and objectives of the in-service program. The sources for the descriptive data included the centers noted above as well as material supplied by the publishers of the material and whatever articles had been written on the materials. The last source proved to offer very little in the way of assistance for most of the material.

One additional set of criteria, other than that established through Steps 1 through 5, was that at least four of the materials to be used had to be able to be used as a complete program in itself as well as being able to be used as supplemental materials. The amount of material purchased for the program was dependent on its use. The use of the materials will be described in more detail in the sections on Methods and Techniques. If the material was to have been used as the central program (similar to a basal approach), then each of the Instructional teams was to receive sufficient quantities of the material to satisfy instructional requirements (i.e., enough workbooks for each child in the instructional group). In the case of supplemental materials, again the use of the material determined the quantity purchased for the program. In order to promote sharing and to allow the supervisor and the teachers themselves the opportunity to determine whether or not teachers could work together in a sharing atmosphere, most of the supplemental materials (materials whose only instructional use was to be as supplements to the central program) were not sufficient for
each group to have all of the materials available. This material was housed in a central location, and the teachers had to use a check-out system to obtain it when needed.

Most of the instructional groups were provided with sufficient instructional equipment needed for the trial. Appendix C contains a list of the equipment used in the trial, and it should be noted that some pieces of equipment were in sufficient supply to provide each group with its own (i.e., overhead projector, video-tape recorder).

**Methods Used in Instruction.** Instruction was accomplished primarily through large group instruction during the first week of the trial; however, small group and individualized instruction as well as "team instruction" were employed. The latter usually involved instruction being offered by a consultant and support provided by the writer or another consultant. This method was used when the use of instructional television was introduced. Primary instruction was given by the consultant, and the writer assisted the teachers in their attempts to familiarize themselves with the equipment as the consultant presented his instructions to them.

Small group instruction, used during the first week, usually followed most of the sessions in which large group instruction was employed. After large group instruction sessions the teachers were formed into teams of three to four and proceeded to familiarize themselves with the material presented in the large group setting. At this time the consultant(s) would move from group to group in an effort to determine how much of the information presented was received by the participants. Where wrong conceptions were gained or when teacher(s) appear(ed) confused, the consultant(s) would work with
these small groups or individuals in an effort to correct whatever needed correcting.

Considerable individualized and small group instruction was used during the second through fifth weeks of the in-service program. The instruction during this period usually involved correcting the teachers in the use of instructional methods and techniques after observation had been made of their performance in a teaching situation. This instruction was usually provided by the consultants; however, occasionally the writer would offer advice on instructional improvement needs.

**Techniques Used in Instruction.** During the initial week of the program instruction involved presentations, demonstrations, and group discussions (See Appendix D). In the presentations the consultants would present the rationale behind the use of the material which was presented. They would then explain to the participants the methods recommended for use with the material as well as the techniques which have been found to be successful. If the material being presented involved the use of equipment, the consultants would demonstrate the use of the equipment. This would usually be followed by having the teachers acquaint themselves with the equipment (i.e., practice using it, such as turning it off and on, etc.). Where applicable the consultants would demonstrate the use of the materials in a hypothetical setting. Whenever demonstrations were made during the first week, the demonstration base was hypothetical. Discussion was used after the material was presented. In the discussion sessions the teachers had the opportunity to ask questions of the consultant and to discuss the possible use of the material with their peers. Discussion was an
integral part of the entire trial.

Instructional techniques employed during the second through fifth weeks involved demonstrations, presentations, observations, self-analysis, practice, and discussion. During this portion of the program classroom demonstrations were made of the use of the material presented during the first week of the program. The demonstrations were conducted by consultants for half-days, one day each week. The demonstrations were intended to involve: (1) demonstrations of the central program and (2) demonstrations of supplemental materials which might be used with the central program. It was made a point to include, in each demonstration, examples of various teaching methods and techniques (i.e., small group, discussion, etc.) which might be employed by the teacher in using the material being demonstrated. Actual students were used for the demonstrations which were conducted at the beginning of each week of the second through fifth weeks of the program. Each week's demonstration centered around one set of material which was to serve for the week as the central program.

The conditions under which the demonstrations were conducted closely resembled the actual classroom. The time used in each demonstration was usually dependent upon the amount of time usually required for use of the material.

Two demonstrations of the central program were made each Monday. Each demonstration was followed by a discussion. The final discussion was followed by a period in which some of the teachers practiced using the material, which was demonstrated, on the students in their respective instructional groups. Two teachers from each of the Instructional groups were usually involved in these Monday morning
practice sessions. The remaining teachers were engaged in other activities the nature of which will be pointed out later in this section. A Monday schedule might appear as follows:

Monday - 9:00-9:25 a.m. - Demonstration 1 - Student Group A
9:30-9:55 a.m. - Discussion
10:00-10:25 a.m. - Demonstration II - Student Group B
10:30-10:55 a.m. - Discussion
11:00-11:25 a.m. - Practice - Teacher 1
11:30-11:55 a.m. - Practice - Teacher 2

Demonstrations I and II involved the same procedures; the only variable was the size of the group of students used and in one instance the sex of the students. If Demonstration I involved using lesson one, lesson one was used in Demonstration II as well.

The afternoons on Mondays, during the second through fifth weeks, involved preparation of instructional programs, by the teachers, for the remainder of the week. During these afternoon periods the consultants assisted the teachers in the development of these programs.

During Tuesday, Wednesday, Thursday, and Friday mornings the teachers were involved in a variety of activities. The instructional groups having three teachers would begin the instruction with one teacher presenting the instruction using the central program as one of the remaining teachers observed the teaching while video-taping the practice session and the other prepared her material for the next instruction using the supplemental materials. The teachers would continue rotating these activities among themselves for the remainder of the week. Occasionally two teachers would "team-up" to present portions of the instruction. This occurred when individualized
instruction was called for. The remaining teacher (teacher not involved in team-teaching) would, in this instance, video-tape the lesson being taught. In instructional groups having four teachers, the fourth teacher would usually observe the practice session. The number of times each teacher used the central program materials or the supplemental materials varied as the time necessary to present the lessons varied.

Observation of the video-tapes made of the practice sessions took place during the portions of two afternoons a week. It was during these afternoons that the teachers were to revise the lessons they had made out on Monday afternoons. The observations were to be made keeping in mind the recommended methods and techniques which had been demonstrated on Monday and then presented the previous week (for recall of both the Monday's demonstrations and the presentations the teachers could view the video-tapes made of these sessions). In addition the teachers were to refer to the list of Teaching Skills (See Appendix K) presented earlier in the program. They were to use this sheet in an effort to evaluate their use of the skills in their daily presentations. The remaining three afternoons during the second through fifth weeks involved attending lectures on such topics as:

1. Assessment of pupils and their intellectual and academic abilities.
2. Pupil record keeping and the use of the Cumulative folder.
3. Behavior Modification as a teaching tool.
4. Preparation of transparencies for the overhead projector.
5. Language development.
6. Arithmetic for the retarded.
7. Reading for the retarded.
8. How to conduct an in-service workshop.
9. How to evaluate a program.

Diagram 6 represents the developmental process with the addition of Step 6; the selection of methods, techniques, and materials (MTM).

**DIAGRAM 6**

**STEP SIX IN DEVELOPMENTAL PROCESS**

(METHODS, TECHNIQUES, AND MATERIALS)

Facets V and VI of the Curriculum Process Model involve evaluation and feedback and their application will be covered in the section of this chapter entitled Evaluation.

Briefly summarized the development of the in-service model up to this point involved: (1) determining why an in-service program was needed. This determination was based on the values inherent in the district's philosophy, (2) determining what should the program attempt to accomplish. Again this determination was based on the
the district's values, (3) determining how the program should be
conducted. Consideration here was given to the way in which the
district viewed the teaching-learning process. The basis again was
the values considered important by the district, and finally (4) deter-
mining what to include in the program and how to present it. Determining
factors here were the district's values and the aims, goals, and
objectives of the in-service model.

Implementation. Placing the in-service model into operation involved
a series of steps which may or may not be necessary in future appli-
cations, but at the time appeared necessary. The procedures used will
be divided into two parts for this presentation: (1) administrative
procedures, and (2) instructional procedures.

The administrative procedures arranged in order of occurrence
involved:

1. Sending letters to all of the district's elementary
   principals asking them to forward questionnaires (see
   Appendix E) to the parents or guardians of children in
   their school who they considered would benefit from the
   program described in the letter (see Appendix F for
   questionnaire to parents or guardians).

2. Notification given to the district's teachers of the
   educable mentally retarded child informing them of the
   program and asking them to notify the district if they
   wished to be considered for selection.

3. Selection of fifteen teachers to participate in the
   study. Selection was made by the school district based
   on the criteria already given in addition to whether or
not the teacher had leadership potential and the potential to utilize what they had gained in an in-service program to instruct other teachers in the district in what they had learned. The basis for selection was purely subjective.

4. Sending letter to the teachers selected informing them of the general procedures to be used in the program and presenting them with a list of the material to be used in the program (Appendix G).

5. Selection of thirty children to participate in the program. Selection was made from the responses to the questionnaires referred to above. The criteria for selection was presented earlier in this chapter.

6. Selecting place to conduct the trial of the in-service model. The choice was made by the district, but recommendations were made for a school which would provide comfortable surroundings for the teachers and the children. It was also recommended that the school should be able to accommodate the variety of instructional procedures to be used in the program. The need was for a setting where the presentations, demonstrations, and practice teaching could be conducted with little or no movement of teachers or materials needed.

7. Selection as instructors only those who know the material, to be included in the program, well. The instructors (consultants) were selected as a result of: (1) recommendations from educational institutions (i.e., colleges and universities), (2) recommendations from publishers, (3) personal experience, and (4) recommendations from acquaintances
who are in the field of education and who have either used the people they recommended in similar situations or know of their qualities.

8. Arrangement for college credit to be given to the participants.
9. Ordering instructional material to be used in the program.

There were additional administrative details involved which would add little to the development of an in-service program, therefore, they are not included in this section.

The instructional procedures involved the following:

1. Assignment of students to instructional groups.
2. Assignment of teachers randomly to the instructional groups.

Evaluation. This portion of the program involved applying Facets V and VI of the Curriculum Process Model. The application of Facet V (Evaluation/Measurement) involved determining whether or not that "planned" had been realized. In other words, it involved determining whether or not the aims, goals, and objectives had been attained. In order to determine the value of the in-service model in bringing about the desired "ends" a variety of measures (subjective and objective) were employed. From the review of literature it was learned that student gain was considered to be a reliable measure of teacher effectiveness, therefore, the student's gain in reading over the period covered by the trial of this in-service model was determined. Determination was accomplished by an administration of the Wide Range Achievement Test to the student prior to the beginning of the in-service program and again after the program had ended. The gain was noted and then statistically evaluated to determine the significance of the gain. The results obtained were used to determine the value of the
program not only as a means of increasing the professional growth of teachers, as indicated through their effectiveness, but as a measure of the value of the program in improving the reading skills of the students.

The relationship which was found to exist between the attitudes of teachers and student gain resulted in the application of another measure to determine the value of the in-service model in developing effective teachers. This involved the administration of the Minnesota Teacher Attitude Inventory to the teachers prior to the beginning of the in-service program and again following it.

In order to determine whether or not the experimental in-service model actually served as a valuable means of providing the teachers with the knowledge necessary to make effective classroom application of the materials which they had used in the in-service program, a rating scale (Appendix H) was administered at the end of the program. Each teacher was asked to rate teachers in his or her respective groups using the criteria established in the presentations and demonstrations. The supervisor also rated the participants.

Feedback for the teachers on their use of the material was provided through use of video-tape playbacks of their performance and occasional visits by consultants.

Improvement on the model presented was not made, but future attempts at implementing the same program would involve a careful scrutiny of the results of the evaluation of this trial before proceeding through the developmental, implementation, and evaluation steps.

Diagram 7 includes the final steps in the development of the experimental in-service model.
Description of Data Gathered

**Attitude Change of Teachers**

In an effort to obtain an indirect measure of the probable increase in professional growth of the teachers, a pre and a post-test was administered to obtain measures of the change in teacher attitudes toward students and teaching. A post, post-test was administered seven months following the end of the summer program in an effort to obtain a relative measure of the retention of any change noted in the pre and post measures. The instrument used in this setting was Form A of the Minnesota Teacher Attitude Inventory (MTAI). This test
has proven to be a reliable instrument in determining the attitudes
towards characteristics of teachers which have been found to be related
to professional growth (Poffenberger, 1956; Cook, 1956).

It is designed to measure those attitudes of a teacher
which predict how well he will get along with pupils in inter-
personal relationships, and indirectly how well satisfied he
will be with teaching as a vocation (Cook, 1956) p. 3.

The reliability of this instrument has been reported to be .909 (Getzels, 1963)

Achievement Change of Students

The Wide Range Achievement Test (WRAT) was used to obtain measures
of the student's skill in reading. Raw scores were obtained on measures
of the student's reading skill achievement prior to exposure to the
in-service program and again following the program. These scores were
also converted to Standard Scores. Reliability measures for the
reading subtest of the WRAT were reported to range from .966 to .982
(Jestak, 1965).

Use of Material by Teachers

Subjective determination of how effective the teachers were in
using the material included in the in-service program was determined
from a tabulation of the ratings given the teachers by their peers and
supervisors. The ratings were obtained from the administration of a
nine item rating sheet (see Appendix I). Administration of the rating
sheet took place at the end of the in-service program. Criteria for the
ratings were based on the methods and techniques described in the
presentations and demonstrations.

Personal Data on Population (Teacher and Student)

Teachers. In an effort to determine whether the changes noted in the
professional growth of teachers varied with their backgrounds,
information relative to their: (1) years of teaching experience, (2) amount of training, and (3) type of institution attended was gathered. Students. For the purpose of placement as well as for comparison of characteristic changes in achievement within groups of children, (1) IQ, (2) chronological age (CA), and (3) sex of the children were tabulated (Table I).

Procedures for Obtaining Data

Attitude Change of Teachers

Prior to the beginning of the in-service program each teacher was given a copy of Form A of the Minnesota Teacher Attitude Inventory. Administration of the test involved having the teachers complete the 150 item test at their convenience over a period of one day. Prior to their taking the test home the supervisor reviewed the instructions with the teachers. The same form of the test was administered in the same manner at the conclusion of the in-service program and again seven months following the end of the program.

Achievement Change of Students

Each student was individually administered Form L of the Wide Range Achievement Test (WRAT) prior to and following the in-service program and again seven months following the end of the program.

Use of Material by Teachers

A nine item rating sheet was given each teacher for each member in the teacher's team. Each teacher was to rate each of the other teachers in her team on a four point scale:

1 = Superior
2 = Above Average
3 = Average (Acceptable performance)

4 = Below Average

indicating how the teachers regarded the use of the materials by their peers. Supervisory ratings were gathered by having one supervisor rating the teachers (all) using the same scale as the teachers used. Criteria for both ratings (peer and supervisory) was to have been based on information gained in the presentations and demonstrations. All teachers were informed of this prior to the rating.

This data was gathered during the last week of the In-service program, immediately following the end of the practice sessions.

Personal Data on Population (Teachers and Students)

**Teachers.** Personal data relative to: (1) years of teaching experience, (2) amount of training, and (3) type of institution attended was gathered prior to the beginning of the in-service program. The data was collected by means of a questionnaire administered prior to the first day of the program (see Appendix L).

**Students.** Personal data relative to: (1) student's IQ, (2) chronological age of students, and (3) sex of students was obtained from a variety of sources. The IQ measure was obtained from the school district's department of special education. Data relating to the family background and age of the students were obtained from questionnaires which were completed by the student's parents prior to the students being selected for the program (see Appendix F).

Procedure for Analysis of Data

To determine the amount and significance of change in the attitudes of teachers and the reading achievement gain of the students,
the Fisher "t" for differences between correlated means was used. The level of acceptance for the two null hypotheses associated with these determinations was set at .05. The statement of the above determinations in the null is:

1. No significant change will take place in the attitudes of the teachers who participate in the in-service program (H0)
2. No significant changes will take place in the reading achievement of the students who take part in the program (H0)
3. No significant change will take place in the attitudes of the teachers between the end of the program and seven months following the end of the program (H0)
4. No significant change will take place in the reading (vocabulary and word recognition) achievement of the students between the end of the program and seven months following the end of the program (H0)

The changes in the attitudes of the teachers were determined by calculating the differences in raw scores between the pre and post measures of Form A of the MTAI.

The changes in reading achievement of the students was determined by calculating the differences in raw scores between the pre and post measures of Form L of the WRAT. Changes were also calculated using the converted standard scores.

The attitude changes of the teachers and the achievement changes of the students were ranked according to the amount of change (greatest change was given the rank of one, second greatest change two, etc.), and the ratings given by peers and supervisors were also ranked according to the average rating given (i.e., highest rating in teacher
group received rank of one, second highest two, etc.). These rankings were then subjected to a testing of the following null hypotheses using the Spearman Rank Correlation (rho) method:

1. There will be no significant correlation between the mean achievement changes in reading of the different groups of children and the mean attitude changes of the group of teachers toward teaching and students ($H^2_0$)

2. There will be no significant correlation between the ratings of teacher's use of materials made by supervisors and the attitude change of the teachers ($H^2_0$)

3. There will be no significant correlation between the ratings of teacher's use of materials made by peers and the attitude change of the teachers ($H^4_0$)

4. No significant correlation will be found between the IQ of the children and their achievement change in reading ($H^8_0$)

5. No significant correlation will be found between the CA of the children and their achievement change in reading ($H^9_0$)

The level of significance for acceptance or rejection of the above hypotheses was placed at .05.

To determine whether or not students of varying IQ or sex differed significantly in the achievement change during the time they participated in the program, an application of the Fisher Exact Probability test was applied to test the following null hypothesis:

There will be no significant differences in the achievement change in reading of the students who are grouped by IQ or sex ($H^7_0$)

The level of significance for acceptance or rejection of this hypothesis was set at .05.
Determination of whether or not teachers of varying backgrounds differed significantly in the attitude changes which took place was accomplished by applying the Fisher Exact Probability test to the null hypothesis:

There will be no significant difference between the attitude changes of teachers; (1) who were trained in teachers colleges and those trained in Universities, (2) who have only three years of teaching experience and those who have over three years teaching experience, (3) who have Master's degrees and those who don't ($H_o^5$).

Again the level of significance for acceptance or rejection was set at the .05 level.

A determination of whether or not there was any significant relationship between the ratings of the use of materials made by the teacher's peers and supervisory ratings was made by applying the Spearman Rank Correlation ($\rho_o$) to the following hypothesis:

There will be no significant correlation between the ratings of the teacher's use of materials whether made by supervisors or peers ($H_o^{10}$).

All calculations for the above determinations were completed by hand.

Tests of significance for all correlations by rank were based on the method recommended by Siegel (1956). This method involved converting the correlation value to a Fisher "$t$" value. The procedure will be outlined in Chapter IV.
CHAPTER IV

DESCRIPTION, TREATMENT, AND
ANALYSIS OF DATA

Introduction

This chapter has been devoted to fulfilling four functions: (1) presentation of data, (2) testing of hypotheses, (3) analyses of data, and (4) interpretation of findings.

In order to make the reading of the analysis of the data easier, the presentation of the data for each category of the analysis has been included in the same section of this chapter as the analysis. This procedure deviates somewhat from the usual dissertation format, but it provides the reader with ready access to the data and its analysis.

The first three sections (main headings) in this chapter are: (1) attitude change of teacher, (2) achievement change in students, and (3) use of materials. The organization within each of these major headings involves: (1) a presentation of the hypothesis, (2) presentation of data by which the hypothesis was tested, (3) description of statistical procedure used in analyzing the data and the rationale behind its selection, and (4) analysis of the data.

The last major heading will contain an interpretation of the findings.

Attitude Change of Teachers

Hypothesis 1

No significant changes will take place in the attitudes of the teachers who take part in this program.
Presentation of Data. Table 2 presents the tabulation of the pre and post MTAI scores obtained for each of the teachers involved in the study. The number assigned each teacher, which appears in the left hand column of the table, will remain constant throughout this report.

**TABLE 2**

ANALYSIS OF CHANGE IN TEACHER'S ATTITUDES

<table>
<thead>
<tr>
<th>Teacher</th>
<th>$X_1$ Pre-Test</th>
<th>$X_2$ Post-Test</th>
<th>D</th>
<th>$D^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-32</td>
<td>-18</td>
<td>+14</td>
<td>196</td>
</tr>
<tr>
<td>2</td>
<td>+15</td>
<td>9</td>
<td>-6</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>-15</td>
<td>-35</td>
<td>-20</td>
<td>400</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>5</td>
<td>+3</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>-41</td>
<td>-21</td>
<td>+20</td>
<td>400</td>
</tr>
<tr>
<td>6</td>
<td>-18</td>
<td>5</td>
<td>+23</td>
<td>529</td>
</tr>
<tr>
<td>7</td>
<td>-2</td>
<td>-4</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>+22</td>
<td>+23</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>-22</td>
<td>-21</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>-2</td>
<td>-5</td>
<td>25</td>
</tr>
<tr>
<td>11</td>
<td>-5</td>
<td>-21</td>
<td>-16</td>
<td>256</td>
</tr>
<tr>
<td>12</td>
<td>-7</td>
<td>0</td>
<td>+7</td>
<td>49</td>
</tr>
<tr>
<td>13</td>
<td>-24</td>
<td>-36</td>
<td>-12</td>
<td>144</td>
</tr>
<tr>
<td>14</td>
<td>-28</td>
<td>-29</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>-18</td>
<td>-6</td>
<td>+12</td>
<td>144</td>
</tr>
</tbody>
</table>

$t = .39 \quad df = 14 \quad M_1 = -11.3$

$p > .05 \quad M_2 = -10.07$
Statistical Treatment. The small size of the sample being tested (N = 15), the fact that the sample was related (pre and post measures are on the same population), and the ordinal nature of the data required the use of the Fisher "t" for related samples in testing the hypothesis. The alpha limit for acceptance or rejection of the hypothesis was set at the .05 level.

$$t = \frac{M_d}{\sqrt{\frac{x_d^2}{N(N-1)}}}$$

$$M_d = \frac{\Sigma X_1}{N_1} - \frac{\Sigma X_2}{N_2}$$

$$x_d^2 = \frac{\Sigma D^2 - (\Sigma D)^2}{N}$$

Analysis of Data. The "t" value of .39 for 14 degrees of freedom was found not to be significant at the .05 level as is reported in Table 1. This lack of significant difference allows us to accept the null hypothesis that no significant change took place in the attitudes of the teachers measured by the MTAl within the time that the program was being conducted.

Further analysis of the data indicates that the post-test mean was -10.07 and the pre-test mean was -11.33. The norm means for the population which would include the teachers involved in this study were +40.1 and +55.1 with respective standard deviations of 37.2 and 36.7.

Hypothesis 11

No significant change in the teacher attitude will be retained after seven months have elapsed following the end of the In-service program.

Presentation of Data. Table 3 presents the tabulation of the difference between the post and post, post score of the teachers on the MTAl.
TABLE 3
RETENTION OF CHANGE IN TEACHERS' ATTITUDES

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Post-Test</th>
<th>Post</th>
<th>Post-Test</th>
<th>D</th>
<th>D²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-18</td>
<td>18</td>
<td>+36</td>
<td>1296</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>102</td>
<td>+93</td>
<td>8649</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>-35</td>
<td>44</td>
<td>+79</td>
<td>6241</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>-21</td>
<td>83</td>
<td>+104</td>
<td>10,816</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>57</td>
<td>+52</td>
<td>2704</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>-4</td>
<td>-3</td>
<td>+1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>+23</td>
<td>53</td>
<td>+30</td>
<td>900</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>-21</td>
<td>39</td>
<td>+60</td>
<td>3600</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>0</td>
<td>3</td>
<td>+3</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>-36</td>
<td>92</td>
<td>+128</td>
<td>16,384</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>-29</td>
<td>7</td>
<td>+36</td>
<td>1296</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>-6</td>
<td>32</td>
<td>+38</td>
<td>1444</td>
<td></td>
</tr>
</tbody>
</table>

\[ M_D = 55 \quad df = 11 \quad p < .05 \]
\[ t = 3.59 \quad p < .01 \]

Statistical Treatment. The size of the sample and other factors being essentially the same as that used to test Hypothesis 1, the statistical treatment was the same. The Fisher "t" for related samples was used to test the hypothesis. The alpha limit was set at the .05 level.

Analysis of Data. The mean difference in the scores was found to be +55 as compared with the mean difference of -10.93. The national norms for a comparable group of teachers with four or more years experience
was +55.1 and for teachers with up to two years experience the norm was +40.0. The mean on this testing exceeded the latter and was very close to the former. The differences in the post and post, post-testing were found to be significant at both the .05 level and the .01 level. Hypothesis 11 was rejected.

Hypothesis 2

There will be no significant correlation between the mean achievement changes in reading of the different groups of children and the mean attitude change of the groups of teachers.

Presentation of Data. Prior to the tabulation of the data, in an effort to determine whether or not there was any linearity in the relationships which were being tested, a correlation chart was prepared (Figure 1).

FIGURE 1

CORRELATION CHART TO CHECK LINEARITY OF RELATIONSHIP BETWEEN MEAN STUDENT ACHIEVEMENT CHANGE AND MEAN TEACHER (BY RANK) ATTITUDE CHANGE
Table 4 represents the tabulation of the mean attitude changes of the four groups of teachers by rank and the tabulation of the four student group's achievement change by rank. The ranking possibilities were 1, 2, 3, and 4. The rank of one (1) indicates the greatest change (mean) in both groups.

**TABLE 4**

**CORRELATION BETWEEN MEAN ACHIEVEMENT CHANGE FOR GROUPS OF STUDENTS AND MEAN ATTITUDE CHANGE FOR TEACHER GROUPS (BY RANK)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Students</th>
<th>Teachers</th>
<th>D</th>
<th>D²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>4</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ r_s = -0.40 \]
\[ p > 0.05 \) (one-tailed test)

**Statistical Treatment.** The Spearman Rank Correlation (rho) method was used to test the hypothesis.

\[ r_s = 1 - 6(\Sigma D^2)/N(N^2-1) \]

This method was chosen because it provides the means by which rankings of group changes could be compared easily.

**Analysis of Data.** The correlations between the mean achievement change of the student groups and the mean attitude change of the teachers of these student groups substantiated the negative correlation observed in
Figure 1. The correlation was found to be -0.40 which was found not to be significant at the .05 level. The hypothesis was accepted.

Hypothesis 3

There will be no significant correlation between the ratings of teacher's use of materials made by supervisors and the attitude change of teachers.

Presentation of Data. Figure 2 was used to check the data for linearity of relatedness. Table 5 contains a tabulation of the ranks assigned the teachers relative to their attitude change and the ratings which they received on the use of the material used in the study. The rank assigned the teacher for attitude change was based on total raw score change. The rank assigned each teacher on the use of materials was determined by assigning the teacher with the lowest composite score on on the ratings given by supervisors the rank of 1. The next lowest received the rank of 2 and so on.
FIGURE 2
CORRELATION CHART TO CHECK LINEARITY OF RELATIONSHIP
BETWEEN TEACHER'S USE OF MATERIALS
(BASED ON SUPERVISORY RATINGS)
AND TEACHER ATTITUDE CHANGE

ATTITUDE CHANGE

USE OF MATERIAL

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
### TABLE 5

**CORRELATION BETWEEN RATING OF TEACHER'S USE OF MATERIAL MADE BY SUPERVISORS AND ATTITUDE CHANGE OF TEACHERS**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Supervisor's Ratings</th>
<th>Attitude Change</th>
<th>D</th>
<th>D²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14</td>
<td>3</td>
<td>-11</td>
<td>121</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>12</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>6</td>
<td>+4</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>2</td>
<td>-5</td>
<td>25</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>1</td>
<td>-4</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td>11</td>
<td>10</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>7.5</td>
<td>+4.5</td>
<td>20.25</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>7.5</td>
<td>+3.5</td>
<td>12.25</td>
</tr>
<tr>
<td>10</td>
<td>9</td>
<td>11</td>
<td>+2</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>6</td>
<td>14</td>
<td>+8</td>
<td>64</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>5</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>13</td>
<td>+12</td>
<td>144</td>
</tr>
<tr>
<td>14</td>
<td>12</td>
<td>9</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>15</td>
<td>10</td>
<td>4</td>
<td>-6</td>
<td>36</td>
</tr>
</tbody>
</table>

\[ t = .55 \quad p > .05 \]

\[ r_s = .15 \]

**Statistical Treatment.** The hypothesis was tested using the Spearman Rank Correlation (rho) method in which the correlation value was converted to a "t" value for final analysis.
\[
\begin{align*}
  r_s &= 1 - 6 \times \frac{\Sigma d^2}{N(N^2-1)} \\
  t &= \frac{r_s}{\sqrt{N-2/1-r_s^2}} 
\end{align*}
\]

This method was used because it allowed the ranked data to be analyzed for correlations between unrelated samples and it provided an easy conversion to a "t" value for determination of the level of significance of the relationship.

Analysis of Data. The correlation chart made for checking the linearity of the relationship between supervisory ratings and teacher attitude change indicated that there is a pattern of linearity, but the scattered points plotted indicated that the relationship was not a very close one. This is confirmed in the statistical analysis of the data which appeared in Table 5. The correlation was found to be +.15 which was not significant at the .05 level. The hypothesis was accepted.

Hypothesis 4

There will be no significant correlation between the ratings of teacher's use of materials made by peers and the attitude change of the teachers.

Presentation of Data. Figure 3 represents a correlation chart to check the linearity of the relationship between the peer's ratings of the teacher's use of the material and the attitude change of the teachers. Table 6 contains a tabulation of the ranks assigned the teachers relative to their attitude change and the rank of the rating assigned each on the use of material. The assignment of ranks for both columns was determined in the same manner as the ranks in Hypothesis 3.
FIGURE 3
CORRELATION CHART TO CHECK LINEARITY OF RELATIONSHIP BETWEEN RATING'S OF TEACHER'S USE OF MATERIALS (BASED ON PEER RATINGS) AND TEACHER ATTITUDE CHANGE
### TABLE 6

**CORRELATION BETWEEN RATINGS OF USE OF MATERIAL MADE BY PEERS AND ATTITUDE CHANGE OF TEACHERS**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Peer Rating</th>
<th>Attitude Change</th>
<th>D</th>
<th>D²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>3</td>
<td>-6</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>12</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>15</td>
<td>+2</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>6</td>
<td>+4</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>2</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>1</td>
<td>-6</td>
<td>36</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>7.5</td>
<td>+6.5</td>
<td>42.25</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>7.5</td>
<td>+1.5</td>
<td>2.25</td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>11</td>
<td>-4</td>
<td>16</td>
</tr>
<tr>
<td>11</td>
<td>5</td>
<td>14</td>
<td>+9</td>
<td>81</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>5</td>
<td>-7</td>
<td>49</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>13</td>
<td>+10</td>
<td>100</td>
</tr>
<tr>
<td>14</td>
<td>11</td>
<td>9</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>8</td>
<td>4</td>
<td>-4</td>
<td>10</td>
</tr>
</tbody>
</table>

\[ r_s = .27 \quad p > .05 \]

\[ t = 1.00 \quad p > .05 \]

Statistical Treatment. Just as in the testing of Hypothesis 3, the Spearman Rank Correlation (rho) method was used as well as the conversion to a "t" value.

The reason given for the use of this method is the same as
that advanced for testing Hypothesis 3.

**Analysis of Data.** The correlation chart (Figure 3) indicated a weak linear relationship between the peer ratings and the attitude change of teachers. This weak relationship was substantiated in the statistical analysis of the data in Table 6. The correlation was found not to be significant at the .05 level. The hypothesis was accepted.

**Hypothesis 5**

There will be no significant differences between the attitude changes of the teachers: (1) who were trained in teacher's colleges and those trained in Universities, (2) who have only three years of teaching experience and those who have over three years teaching experience, and (3) who have Master's degrees and those who don't.

**Presentation of Data.** Table 7 contains a tabulation of the changes in attitude of teachers who: (1) were trained in teacher's colleges, (2) were trained in Universities, (3) have three or less years of teaching experience, (4) have over three years of teaching experience, (5) have Master's degrees, and (6) who have bachelor's degrees.

Tables 8, 9, and 10 are 2 x 2 contingency tables in which the data tabulated in Table 5 was entered for tabulation relative to increase (+) or decline (-) in attitude change of teachers.
### TABLE 7

ATTITUDE CHANGE OF TEACHERS BY CATEGORIES

<table>
<thead>
<tr>
<th>Trained In Teacher's Colleges</th>
<th>Prepared Three or Over Three Years Tchg.</th>
<th>M.A.</th>
<th>B.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepested In Universities</td>
<td>1 +23</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Less Years Tchg.</td>
<td>-2 +7</td>
<td>6</td>
<td>-2</td>
</tr>
<tr>
<td></td>
<td>+14 +3</td>
<td>5</td>
<td>+3</td>
</tr>
<tr>
<td></td>
<td>-16 -5</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>-12 -6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>-1 -12</td>
<td>+1</td>
<td>-16</td>
</tr>
<tr>
<td></td>
<td>-20 +12</td>
<td>-12</td>
<td>-20</td>
</tr>
<tr>
<td></td>
<td>-16 -1</td>
<td>-16</td>
<td>-20</td>
</tr>
</tbody>
</table>

Σ = -29 +48 +18 +12 +16 +1

Mₐ = -3.6 +6.9 +6 +.083 +3.2 +.3

### TABLE 8

CONTINGENCY TABLE FOR FISHER EXACT PROBABILITY TEST OF THE RELATIONSHIP BETWEEN THE ATTITUDE CHANGE OF TEACHERS TRAINED IN TEACHER'S COLLEGES AND THOSE TRAINED IN UNIVERSITIES

<table>
<thead>
<tr>
<th></th>
<th>(+)</th>
<th>(-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers trained in Teacher's Colleges</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Teachers trained in Universities</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

p > .05
TABLE 9

CONTINGENCY TABLE FOR FISHER EXACT PROBABILITY TEST
OF THE RELATIONSHIP BETWEEN THE ATTITUDE CHANGE
OF TEACHERS WITH UP TO AND INCLUDING THREE
YEARS OF EXPERIENCE AND TEACHERS WITH
OVER THREE YEARS OF EXPERIENCE

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>-</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers with three years and under of experience</td>
<td>2</td>
<td>1</td>
<td>p &gt; .05</td>
</tr>
<tr>
<td>Teachers with over three years of experience</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

TABLE 10

CONTINGENCY TABLE FOR FISHER EXACT PROBABILITY TEST
OF THE RELATIONSHIP BETWEEN THE ATTITUDE CHANGE
OF TEACHERS WHO HAVE MASTER'S DEGREES AND
THOSE WHO HAVE ONLY BACHELOR'S DEGREES

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>-</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers with Bachelor's Degrees</td>
<td>4</td>
<td>5</td>
<td>p &gt; .05</td>
</tr>
<tr>
<td>Teachers with Master's Degrees</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Statistical Treatment. The Fisher Exact Probability test was used to test this hypothesis. The test was applied to each pair of group comparisons.

\[
p = \frac{(A+B)!(C+D)!(A+C)!(B+D)!!}{N!A!B!C!D!}
\]

Values for calculations are obtained from contingency tables.
The basis for the selection of this test was that the data accumulated could be expressed in one of two ways (either positive or negative) and the information desired was only based on the comparison of small groups (independent).

**Analysis of Data.** The analysis of the data in contingency tables results in the finding that the relationships tested were found not to be significantly different in their change in attitudes at the .05 level. The information contained in Table 5 indicates, though the attitude change difference between those who graduated from teacher's colleges and those who graduated from Universities was found not to be significant at the .05 level, that the teachers who graduated from Universities had a mean positive change in attitudes which was more than that of the teachers who graduated from teacher's colleges, the former being +6.9 and the latter -3.6.

In addition, though the change differences for the groups with different durations of teaching experience was found not to be significant at the .05 level, the teachers with three years of experience and under did have a mean change which was more positive than that of the teachers with over three years of experience. The mean change for the former was +6.0 and for the latter +.083.

Teachers with Master's degrees had a slightly greater positive change in attitudes (+3.2) than did the teachers with Bachelor's degrees (+1.3).

The entire hypothesis was accepted.
Achievement Change of Students

Hypothesis 6

No significant changes will take place in the reading achievement level of the students who take part in the program.

Presentation of Data. Table 11 contains a tabulation of the raw scores obtained by the students on the pre and post administration of the Wide Range Achievement Test (WRAT). Table 12 contains a tabulation of the pre and post standard scores (SS) for the raw scores reported in Table 9. The table of standard scores was included as a means of obtaining a better picture of the achievement gain or decline of the students.

TABLE 11

<table>
<thead>
<tr>
<th>Student</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>D</th>
<th>D^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>37</td>
<td>32</td>
<td>-5</td>
<td>25</td>
</tr>
<tr>
<td>27</td>
<td>2</td>
<td>21</td>
<td>+19</td>
<td>361</td>
</tr>
<tr>
<td>32</td>
<td>16</td>
<td>15</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
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<td>35</td>
<td>-4</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>24</td>
<td>+18</td>
<td>324</td>
</tr>
<tr>
<td>11</td>
<td>56</td>
<td>55</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
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<td>31</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>12</td>
<td>+6</td>
<td>36</td>
</tr>
<tr>
<td>17</td>
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<td>-1</td>
<td>1</td>
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<td>25</td>
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<tr>
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<td>0</td>
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<tr>
<td>20</td>
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<td>+2</td>
<td>4</td>
</tr>
<tr>
<td>31</td>
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<td>14</td>
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<td>+22</td>
<td>484</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>47</td>
<td>+24</td>
<td>576</td>
</tr>
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<td>19</td>
<td>19</td>
<td>45</td>
<td>+26</td>
<td>676</td>
</tr>
<tr>
<td>3</td>
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</tr>
<tr>
<td>5</td>
<td>25</td>
<td>53</td>
<td>+28</td>
<td>784</td>
</tr>
<tr>
<td>33</td>
<td>46</td>
<td>52</td>
<td>+6</td>
<td>36</td>
</tr>
<tr>
<td>34</td>
<td>49</td>
<td>49</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ t = 2.67 \quad df = 24 \quad p < .05 \]
### TABLE 12

**ACHIEVEMENT CHANGE IN READING AS MEASURED BY THE WIDE RANGE ACHIEVEMENT TEST (WRAT) PRE AND POST-TEST STANDARD SCORES**

<table>
<thead>
<tr>
<th>Student</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>D</th>
<th>D²</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>79</td>
<td>76</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>27</td>
<td>48</td>
<td>66</td>
<td>+18</td>
<td>324</td>
</tr>
<tr>
<td>32</td>
<td>64</td>
<td>63</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>76</td>
<td>73</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>54</td>
<td>72</td>
<td>+18</td>
<td>324</td>
</tr>
<tr>
<td>11</td>
<td>80</td>
<td>78</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>72</td>
<td>71</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>56</td>
<td>63</td>
<td>+7</td>
<td>49</td>
</tr>
<tr>
<td>17</td>
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<td>0</td>
</tr>
<tr>
<td>28</td>
<td>89</td>
<td>75</td>
<td>-14</td>
<td>196</td>
</tr>
<tr>
<td>25</td>
<td>73</td>
<td>72</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>67</td>
<td>67</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>70</td>
<td>71</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
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<td>+14</td>
<td>196</td>
</tr>
<tr>
<td>16</td>
<td>60</td>
<td>60</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>62</td>
<td>74</td>
<td>+12</td>
<td>144</td>
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<td>19</td>
<td>60</td>
<td>73</td>
<td>+13</td>
<td>169</td>
</tr>
<tr>
<td>3</td>
<td>68</td>
<td>65</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>24</td>
<td>61</td>
<td>75</td>
<td>+14</td>
<td>196</td>
</tr>
<tr>
<td>6</td>
<td>66</td>
<td>65</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>65</td>
<td>83</td>
<td>+18</td>
<td>324</td>
</tr>
<tr>
<td>5</td>
<td>63</td>
<td>79</td>
<td>+16</td>
<td>256</td>
</tr>
<tr>
<td>33</td>
<td>73</td>
<td>78</td>
<td>+5</td>
<td>25</td>
</tr>
<tr>
<td>34</td>
<td>75</td>
<td>75</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

\[ t = 2.29 \quad \text{df} = 24 \]

\[ p < .05 \quad \text{Md} = 4.04 \]

---

**Statistical Treatment.** The Fisher "t" for related samples was used to test this hypothesis.

\[ t = \frac{M_d}{\sqrt{\frac{\Sigma d^2}{N(N-1)}}} \]

This method was selected because the sample was a related sample, the data was ordinal, and the sample was considered small (under 30).

**Analysis of Data.** Achievement in reading, as measured by the Wide Range Achievement Test (WRAT), changed significantly at the .05 level, over
the period that the students participated in the study. The mean gain in achievement in reading which the students exhibited at the end of the program was calculated to be 6.72 raw points. As was stated previously this gain was found to be significant at the .05 level.

Achievement gain, as represented by standard score differences, indicated that the students' mean gain in SS points was 4.04. Though this gain does not represent as large a numerical gain as that indicated for the raw scores, nevertheless, it does represent a gain which was significant at the .05 level. The hypothesis was rejected.

The standard deviation for the standard scores norms was found to be 15 and four of the students gained equivalent to or larger than one standard deviation above the mean. Of the 25 students participating in the program, 15 either gained in standard score points or exhibited no change. This represents 60% of the total student population.

Hypothesis 12

There will be no significant retention of the achievement change in reading of the students seven months following the instructional part of the in-service program.

Presentation of Data. Table 13 contains a tabulation of the raw scores obtained by the students on the post and the post, post administration of the Wide Range Achievement Test (WRAT). Table 14 contains a tabulation of the post and post, post standard scores (SS) for the raw scores reported in Table 13. The table of standard scores was included as a means of obtaining a better picture of the rate of achievement change of the students.
Statistical Treatment. The Fisher "t" for related samples was used to test this hypothesis.

Analysis of Data. All but four of the students in the final testing gained in raw score points, however, the gain was found not to be significant at the .05 level. A conversion of the raw scores into standard scores (Table 14) results in a finding that there was a significant decrease in standard scores. The hypothesis was accepted insofar as raw scores were concerned, but rejected insofar as standard score points were concerned.

<table>
<thead>
<tr>
<th>Student</th>
<th>Post-test</th>
<th>Post,Post-test</th>
<th>D</th>
<th>D²</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>32</td>
<td>36</td>
<td>+4</td>
<td>16</td>
</tr>
<tr>
<td>27</td>
<td>21</td>
<td>20</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>35</td>
<td>42</td>
<td>+7</td>
<td>49</td>
</tr>
<tr>
<td>11</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>31</td>
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<td>+3</td>
<td>9</td>
</tr>
<tr>
<td>28</td>
<td>35</td>
<td>37</td>
<td>+2</td>
<td>4</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>27</td>
<td>+2</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>41</td>
<td>46</td>
<td>+5</td>
<td>25</td>
</tr>
<tr>
<td>14</td>
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<td>34</td>
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<td>1</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>42</td>
<td>+32</td>
<td>1024</td>
</tr>
<tr>
<td>19</td>
<td>45</td>
<td>46</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>31</td>
<td>37</td>
<td>+6</td>
<td>36</td>
</tr>
<tr>
<td>6</td>
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</tr>
<tr>
<td>33</td>
<td>52</td>
<td>41</td>
<td>-11</td>
<td>121</td>
</tr>
<tr>
<td>34</td>
<td>49</td>
<td>48</td>
<td>-1</td>
<td>1</td>
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<tr>
<td>5</td>
<td>53</td>
<td>43</td>
<td>-10</td>
<td>100</td>
</tr>
</tbody>
</table>

\[ t = 1.8 \]
\[ df = 15 \]
\[ p > .05 \]
\[ M_D = -3.9 \]
TABLE 14
RETENTION OF ACHIEVEMENT CHANGE IN READING
OF STUDENTS (STANDARD SCORES)

<table>
<thead>
<tr>
<th>Student</th>
<th>Post-test</th>
<th>Post,Post-test</th>
<th>D</th>
<th>D^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>76</td>
<td>68</td>
<td>-8</td>
<td>64</td>
</tr>
<tr>
<td>27</td>
<td>66</td>
<td>60</td>
<td>-6</td>
<td>36</td>
</tr>
<tr>
<td>8</td>
<td>73</td>
<td>72</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>78</td>
<td>75</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>71</td>
<td>67</td>
<td>-4</td>
<td>16</td>
</tr>
<tr>
<td>28</td>
<td>63</td>
<td>41</td>
<td>-22</td>
<td>484</td>
</tr>
<tr>
<td>25</td>
<td>75</td>
<td>76</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>72</td>
<td>70</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>71</td>
<td>70</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>76</td>
<td>74</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td>73</td>
<td>73</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>65</td>
<td>66</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>65</td>
<td>66</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>33</td>
<td>78</td>
<td>68</td>
<td>-10</td>
<td>100</td>
</tr>
<tr>
<td>34</td>
<td>75</td>
<td>72</td>
<td>-3</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>79</td>
<td>69</td>
<td>-10</td>
<td>100</td>
</tr>
</tbody>
</table>

t = 2.91
df =15           p < .05
Md = 4.3          p < .01

Hypothesis 1
There will be no significant difference in the achievement gain in reading of the students who are grouped heterogeneously or homogeneously by IQ and Sex.

Presentation of Data. Table 15 contains a 2 x 2 contingency table in which the gain in achievement is compared between the various student groups.
TABLE 15
CONTINGENCY TABLE FOR DETERMINING SIGNIFICANT
DIFFERENCE OF GAIN IN READING ACHIEVEMENT
BETWEEN STUDENT GROUPS

<table>
<thead>
<tr>
<th></th>
<th>Gain</th>
<th>No Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Group I (Heterogeneous)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Group II (Heterogeneous)</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Group I (Heterogeneous)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Group III (Homogeneous by sex and IQ, girls)</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Group I (Heterogeneous)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Group IV (Homogeneous by sex and IQ, boys)</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>Group IV (Homogeneous by sex and IQ, boys)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Group I (Heterogeneous)</td>
<td>2</td>
</tr>
<tr>
<td>E</td>
<td>Group II (Heterogeneous)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Group III (Homogeneous by sex and IQ, girls)</td>
<td>3</td>
</tr>
<tr>
<td>F</td>
<td>Group IV (Homogeneous by IQ and sex, boys)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Group II (Heterogeneous)</td>
<td>4</td>
</tr>
<tr>
<td>G</td>
<td>Group IV (Homogeneous by IQ and sex, boys)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Group III (Homogeneous by IQ and sex, girls)</td>
<td>3</td>
</tr>
</tbody>
</table>

Statistical Treatment. The Fisher Exact Probability test was used to test this hypothesis. The test was applied to each pair of group comparisons. The reason for the selection of this method was that the data accumulated could be expressed in one of two ways (either gain or no gain) and the information desired was only based on the comparison of small independent samples.

Analysis of Data. The achievement gains made during the program were found not to be significantly different at the .05 level for any of
the pairs of student groups compared. The hypothesis was accepted. The greatest gain was between the heterogenous groups and the least gain between the two homogeneous groups.

**Hypothesis 8**

No significant correlation will be found between the IQ of the students and their achievement changes in reading.

**Presentation of Data.** The data was plotted on a correlation chart to check the linearity of the relationship between the two variables. This data appears in Figure 4 as a comparison of ranks assigned the student's Intelligence Quotient and their achievement change. The Intelligence Quotient rank was determined by giving the highest Intelligence Quotient the rank of 1, the next highest the rank of 2 and so forth. The achievement rank was assigned according to the amount of gain in achievement. The greatest gain received the rank of 1, the second greatest the rank of 2 and so forth. Table 16 contains a tabulation of these ranks. Ranks were determined based on raw score differences between pre- and post-test measures.
FIGURE 4

CORRELATION CHART TO CHECK LINEARITY OF RELATIONSHIP BETWEEN INTELLIGENCE QUOTIENT AND READING ACHIEVEMENT CHANGE OF STUDENTS (BY RANK)
### TABLE 16

CORRELATION BETWEEN STUDENT INTELLIGENCE QUOTIENT AND ACHIEVEMENT CHANGE (BY RANK)

<table>
<thead>
<tr>
<th>Student IQ</th>
<th>Rank by IQ</th>
<th>Achievement</th>
<th>D</th>
<th>D²</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>2</td>
<td>5</td>
<td>+3</td>
<td>9</td>
</tr>
<tr>
<td>65</td>
<td>2</td>
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</tr>
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<td>64</td>
<td>5.5</td>
<td>11</td>
<td>+5.5</td>
<td>30.25</td>
</tr>
<tr>
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<td>5.5</td>
<td>3</td>
<td>-2.5</td>
<td>6.25</td>
</tr>
<tr>
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<td>380.25</td>
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<td>7</td>
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<td>2.25</td>
</tr>
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<td>+9</td>
<td>81</td>
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<td>3</td>
<td>-6</td>
<td>36</td>
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<tr>
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<td>9</td>
<td>8</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>62</td>
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<td>22.5</td>
<td>-10.5</td>
<td>110.25</td>
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<tr>
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<td>12</td>
<td>14</td>
<td>+2</td>
<td>4</td>
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<tr>
<td>62</td>
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<td>36</td>
</tr>
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<td>61</td>
<td>14</td>
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<td>58</td>
<td>16.5</td>
<td>18</td>
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<td>2.25</td>
</tr>
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<td>16.5</td>
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<td>156.25</td>
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<tr>
<td>57</td>
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<td>18</td>
<td>-.5</td>
<td>.25</td>
</tr>
<tr>
<td>56</td>
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</tr>
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<td>56</td>
<td>20.5</td>
<td>21</td>
<td>+.5</td>
<td>.25</td>
</tr>
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<td>0</td>
</tr>
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<td>-8.5</td>
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<tr>
<td>53</td>
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<td>9.5</td>
<td>-14.5</td>
<td>210.25</td>
</tr>
<tr>
<td>50</td>
<td>25</td>
<td>12</td>
<td>-13</td>
<td>169</td>
</tr>
</tbody>
</table>

\[ r_s = .23 \]

\[ t = 1.13 \quad p > .05 \]

**Statistical Treatment.** Due to the many tied ranks in this data the Spearman Rank Correlation (rho) method corrected for tied ranks was used. This method was chosen because of its ease in working with small samples when comparators of rank relationships between related samples are to be made. The Spearman measure was then converted to a "t" value for determination of significance of correlation.
\[ r = \frac{\sum x^2 + \sum y^2 - \sum d^2}{\sqrt{\sum x^2 \sum y^2}} \]

\[ \sum x^2 = N^3 - N/12 - \sum T_y \]

\[ \sum y^2 = N^3 - N/12 - \sum T_x \]

\[ t = t^3 - t/12 \]

\[ t - \text{number of tied ranks} \]

\[ t = \frac{r_s}{N - 2 / 1 - r_s^2} \]

**Analysis of Data.** Indications from the correlation chart in Figure 4 are that there was a linear relationship between the two factors, but that the relationship was not very close. This supposition was supported by the finding that the two factors were found not to be significantly correlated at the .05 level. The hypothesis was accepted.

**Hypothesis 9**

No significant correlation will be found between the chronological age of the children and the achievement changes in reading.

**Presentation of Data.** The data was plotted on a correlation chart to check the linearity of the relationship between the two factors. This data appears in Figure 5 as a comparison of ranks.

Table 17 contains a tabulation of the CA ranks and the achievement ranks of the students as well as a listing of the students' chronological ages. The CA ranks were determined by assigning the child with the highest CA the rank of 1 and the child with the next highest the rank of 2 and so forth. The achievement ranks were assigned according to the amount of achievement gain. The greatest gain received the rank of 1 and the second greatest gain the rank of 2 and so forth.
FIGURE 5

CORRELATION CHART TO CHECK LINEARITY OF RELATIONSHIP BETWEEN CHRONOLOGICAL AGE AND READING ACHIEVEMENT CHANGE OF STUDENTS
Statistical Treatment. The same statistical method was used to test this hypothesis as was used to test hypothesis 8 and for the same reasons. Analysis of Data. Indications from the correlation chart in Figure 5 are that there is a definite linear relationship between the two factors, and it appeared that this relationship was a very close one. This supposition was supported by the finding that the CA and the achievement
gain of the students were found to be significantly correlated at the .05 level and also at the .01 level. The hypothesis was rejected.

Use of Material

Hypothesis 10

There will be no significant correlation between the ratings of the teacher's use of materials made by supervisors and those made by peers.

Presentation of Data. Figure 6 contains a plotting of the composite scores of peer ratings against the ratings of supervisors. The chart was used to check the linearity of the relationship between the two factors. Table 18 contains a tabulation of the composite ratings of each teacher as made by supervisors and peers. Table 19 contains a ranking of these ratings and Table 20 contains the data necessary to compute the Kendall Coefficient of Concordance (W) to determine the relatedness of peer and supervisory ratings.
FIGURE 6
CORRELATION CHART FOR CHECKING LINEARITY OF RELATIONSHIP
BETWEEN RATINGS BY PEERS AND RATINGS
BY SUPERVISORS


### TABLE 18

**COMPOSITE RATINGS OF TEACHER’S USE OF MATERIALS**
**BY SUPERVISORS AND BY PEERS**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Peer Rating</th>
<th>Supervisor Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>9.7</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>13.7</td>
<td>11</td>
</tr>
<tr>
<td>13</td>
<td>14.3</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>14.5</td>
<td>20</td>
</tr>
<tr>
<td>11</td>
<td>18.3</td>
<td>19</td>
</tr>
<tr>
<td>9</td>
<td>16.5</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>19.5</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>1</td>
<td>21.3</td>
<td>32</td>
</tr>
<tr>
<td>7</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>14</td>
<td>24.3</td>
<td>28</td>
</tr>
<tr>
<td>12</td>
<td>24.7</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>25.3</td>
<td>34</td>
</tr>
<tr>
<td>2</td>
<td>25.7</td>
<td>31</td>
</tr>
<tr>
<td>10</td>
<td>28.7</td>
<td>24</td>
</tr>
</tbody>
</table>

### TABLE 19

**CORRELATION OF MEAN RATINGS OF TEACHER’S USE OF MATERIAL**
**BY PEERS AND SUPERVISORS ARRANGED BY RANK**

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Peer</th>
<th>Supervisor</th>
<th>D</th>
<th>$D^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>14</td>
<td>+5</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>13</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>15</td>
<td>+2</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>7</td>
<td>+3</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>5</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>11</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>3</td>
<td>+2</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>4</td>
<td>-1</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>9</td>
<td>-6</td>
<td>36</td>
</tr>
<tr>
<td>11</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>8</td>
<td>-4</td>
<td>16</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>1</td>
<td>-2</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>11</td>
<td>12</td>
<td>+1</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>8</td>
<td>10</td>
<td>+2</td>
<td>4</td>
</tr>
</tbody>
</table>

$r_s = .80$  
$p < .05$  
$df = 14$

$+ = 4.8$  
$p < .01$  
$df = 14$
TABLE 20

RELATEDNESS OF PEER AND SUPERVISORY RATING OF MATERIAL USAGE

<table>
<thead>
<tr>
<th>Teacher Ratings ( Ranked)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Peer</td>
<td>9</td>
<td>14</td>
<td>13</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>1</td>
<td>6</td>
<td>15</td>
<td>5</td>
<td>12</td>
<td>3</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Supervisory</td>
<td>14</td>
<td>13</td>
<td>15</td>
<td>2</td>
<td>7</td>
<td>5</td>
<td>11</td>
<td>3</td>
<td>4</td>
<td>9</td>
<td>6</td>
<td>8</td>
<td>1</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

\[ x^2 = 26.9 \quad W = .96 \]
\[ p < .05 \]

Statistical Treatment. In order to determine whether or not the teachers and the supervisors used the same standards for rating, the Kendall Coefficient of Concordance (W) was determined and then converted to a value of chi square to determine the significance of the relatedness.

\[ W = s / 1/12 k^2(N^3-N) \]

\[ s = \text{sum of squares of the observed deviations from the mean rank.} \]

\[ k = \text{number of sets of rankings.} \]

\[ N = \text{number of entities ranked.} \]

\[ x^2 = k(N-1)W \]

The data in Table 19 was used for this determination. This test was chosen in order to determine whether or not the persons rating the teachers were using the same standards. The reason for the use of this determination will be presented in the section concerned with the interpretation of the findings.

The Spearman Rank Correlation (rho) was used to determine the correlation between the factors involved. It was chosen due to its
ease in working with ranked data and due to the fact that it lends itself to the evaluation of data which involves comparisons of ranks of unrelated samples. In addition the small size of the sample added to the decision to use this method. The correlation value was converted to a "t" value for an interpretation of its significance.

\[ t = \frac{r_s \cdot N - 2}{1 - r_s^2} \]

Analysis of Data. The indications were, from the chart in Figure 6, that the relationship between peer and supervisor ratings was very close. This supposition was substantiated in the finding that the correlation between the two factors was found to be significant at the .05 and .01 levels. The significance of the findings, when the coefficient of concordance (significantly related at the .05 level) is considered, indicates that the two groups of raters used essentially the same standards. The hypothesis was rejected.

The mean ratings of the teacher's use of the materials by their peers was found to be 2.23 as compared to the mean rating of 2.38 for the rating by supervisors. These values were obtained by totaling the peer and supervisory ratings in Table 18 and dividing by the total number of items rated (126) (No. of items on rating sheet x number of teachers rating). The rating scale used was based on the following scale: 1 = superior, 2 = above average, 3 = average, 4 = below average.

Interpretation of Data

It is the intent in this section of the chapter to determine whether or not the data obtained in the research provided answers to the following questions:
1. Did the teachers change significantly in those attitudes which have been reported to be related to effective teaching and was the change retained after the teachers returned to their duties?

2. Did the teachers who participated in the study achieve the objective of being able to use the material adequately?

3. Did the students who participated in the program gain significantly in reading achievement and was the change retained after the students returned to their regular classes?

**Attitude Change of Teachers**

The pre and post measures obtained from the administration of the Minnesota Teacher Attitude Inventory did not indicate any significant changes in the attitudes of the teachers (attitudes which literature indicated are related to effective teaching). The null hypothesis, that no significant changes will take place in the attitudes of the teachers, was therefore accepted at the .05 level. However, when testing the teachers to determine whether or not the change noted was retained, the data indicated that not only was the change retained, but the teachers changed significantly in their attitudes over the seven months between post and post, post testings. It would appear, based on these findings, that during the period of time the teachers were attending the in-service program, they did not significantly change in attitudes; however, during the time they were not attending the in-service program their attitudes did change significantly. These results seem to indicate that the teachers did change to a somewhat more positive attitude during the time they attended the in-service program, but changed to an even more positive attitude during the
seven months following the program. Though the change was not significant, the mean change was a positive change which does indicate that the teachers did change toward a more positive attitude which would suggest that some professional growth did take place during the operation of the in-service model program.

The lack of significant changes in the attitudes of the teachers during the trial of the in-service model, might be attributed to a lack of sufficient emphasis on activities in the in-service program which were devoted to immediate affective change. The periods in the program which were devoted to awareness of the need to understand the needs of students was limited to the periods mentioned previously concerning student evaluation and behavior modification. Indirect methods of effecting the attitude of the teachers was contained within the context of the demonstrations and presentations. Additional attempts were made to make the teachers more aware of the student's needs in the self-evaluation portion of the program. Prior reference to the studies of Johnston (1969), Cooper (1969), Milanovich (1966), and Pace (1944) in Chapter II, regarding the effectiveness of self-appraisal in bringing about change in teacher's attitudes were, when combined with the above activities, apparently not structured enough to result in a significant immediate attitude change. Another factor which might have attributed to the lack of significant change in the attitudes of the teachers during the period of time they participated in the in-service model trial was the fact that most of the teachers were involved in teaching students, during the trial, who were older than children they have in their classes during the regular school year. This was one of their most often voiced complaints about the program. It would seem
that after the teachers returned to their own classrooms, however, and were engaged in teaching students of the age they were accustomed to, the attitudes changed significantly. From the results obtained in this portion of the evaluation it would appear that the procedures used to effect attitude change in the teachers who participated in the trial of the in-service model might have resulted in a latent change in the teacher's attitude.

The findings which resulted in the acceptance of the null hypothesis number three indicated an inverse relationship between teacher attitude and student achievement (insofar as the teachers and the students who participated in this study are concerned). The indication here would be that the group of teachers with the greatest mean gain had the students with the smallest achievement gain. Indications in the literature were that the opposite should hold true.

Though the attitude change of the teachers was found not to be significantly correlated to the ratings of the teacher's use of materials by supervisors or peers, it would appear that peer rating was more closely related to the attitude change of the teachers than were the ratings given by the supervisor.

It would also appear that the attitude changes did not differ significantly for teachers who were prepared in different types of institutions or who had varying amounts of teaching experience. In addition, the amount of preparation a teacher had did not seem to result in any significant difference in the attitude changes which took place during the time they participated in the trial of the in-service model. The null hypothesis that there would be no significant difference between the characteristics noted above was accepted. Though the changes
in the teacher's attitudes were found not to be significant at the .05 level, it should be noted that the greatest mean gain was made by teachers who had received their preparation in Universities and the least mean gain was made by teachers who were prepared in teacher's colleges. The next smallest mean gain was made by teachers who had over three years of experience. The second largest gain was made by those teachers who were relatively new to teaching (those with three or less years of experience).

Achievement Change

In contrast to the findings that the teachers who participated in the program did not change significantly in their attitudes, during the period of time they were involved in the program, the students did change significantly. The achievement gain in reading of the students was found to be significant at the .05 level. If the authors of the test used (Wide Range Achievement Test) are correct, the change noted might be indicative of an increase in the students' intellectual ability (Jastak and Jastak, 1965). The null hypothesis that there would be no significant change in the reading achievement level of the students was rejected at the .05 level. Though the students did increase in the raw score points in the reading between the time the program ended and post, post test was administered, their standard scores decreased. This would tend to indicate that the students did gain in amount of reading, but their rate of learning reading decreased.

An analysis of the results of the data pertaining to change in the reading achievement of the students who were grouped homogeneously by sex and IQ indicates that there were no significant differences
between the achievement of any of the groups of students taking part in the study. The students who were homogeneously grouped by IQ and sex did not gain in achievement more than did the students who were in groups not homogeneously arranged. The null hypothesis stating that there would be no significant difference between these groups was accepted at the .05 level.

Use of Material

An analysis of the data pertaining to the ratings given teachers of their use of materials by their peers and by supervisors indicates that the same standards were used by the teachers and supervisors in rating. As would be expected, it was also determined that there was a significant correlation between the ratings given by peers and supervisors. This would indicate that both the teachers and the supervisors were in agreement as to the ability of the teachers to use the materials used in the program. This close agreement is further observed in the mean ratings of the teachers by peers and supervisors. The former was found to be 2.23 and the latter 2.38. Based on a rating scale of 1 through 4 in which 1 was the highest rating, indications are that the raters considered the teachers to be fairly successful in their ability to use the material introduced in the in-service program. The null hypothesis that there would be no significant correlation between the ratings of peers and supervisors was rejected at both the .05 and .01 levels.

The lack of a significant correlation between the ratings by peers and supervisors and the attitude change of the teachers would not only lead to an acceptance of the null hypothesis associated with these findings, but would also indicate that the teachers with the
greatest change in attitudes did not necessarily receive the highest rating on material usage.

Summary

In summary, it would appear that the findings of the study would support the following:

1. The teachers did not change significantly in their attitudes during the period of time they participated in the trial of the in-service model; however, their attitude did change significantly during the seven month period immediately following the in-service trial.

2. The teachers were successful in learning to use the material introduced to them.

3. The students did gain significantly in their reading skills (vocabulary and word recognition) and that the gain was retained over a seven month period of time though the rate of learning decreased significantly over the same period of time.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Purposes

The development and implementation of an in-service model (hereafter referred to as the experimental in-service program) program and the determination of its effectiveness in changing teacher's attitudes and student reading skills was investigated. The quantity of these two changes was determined to be an acceptable indicator of the extent to which the experimental in-service program overcame at least some of the shortcomings of previous in-service programs.

Rationale

The research into in-service education had resulted in establishing, according to acknowledged authorities, that in-service education was needed and that there were many shortcomings in in-service programs in the past. It was assumed that, if these identified shortcomings could be eliminated, an in-service program could be developed which was better able to provide for the professional growth of teachers than in-service programs in the past.

Procedures and Materials

The experimental in-service program was specifically developed for teachers of the educable mentally retarded child in the Kansas City, Missouri, school district. The development of the model followed the developmental procedures outlined by the Curriculum Process Model which had been developed by P. Rogers at the University of Kansas.
Fifteen teachers of educable mentally retarded children in the Kansas City, Missouri, school district were selected for the implementation of the experimental in-service program. These teachers were originally assigned randomly to five instructional teams, but due to personality conflicts, the groups were reduced to four teams. Three of these teams had four teachers and one team had three teachers.

Each instructional team was provided with an instructional group of children on whom they could practice using the material included in the in-service program. The original design of the study called for 30 educable mentally retarded children chosen for these instructional groups, but for a variety of reasons only 25 children participated.

After the experimental in-service program was developed, it was implemented during a five week period, the summer of 1970. The majority of the children used in the program were from areas in Kansas City considered culturally deprived, and most of the teachers involved were assigned to teach in the culturally deprived areas.

Evaluation of the experimental in-service program, as a means whereby the professional growth of teachers of educable mentally retarded children was determined by: (1) measuring the attitude change of the teachers, (2) measuring the achievement gain in the students, and (3) measuring teacher effectiveness in employing the instructional materials which had been presented in the program.

Measurement of teacher's attitude change was accomplished by the administration of a pre-test prior to the beginning of the trial of the experimental in-service program and a post-test immediately following the program. A post, post-test was administered seven months after the experimental program had ended in order to determine whether or not the
attitude change had been retained. The test used in this portion of the evaluation was the Minnesota Teacher Attitude Inventory, Form A.

Student reading achievement was measured by the administration of a pre-test prior to the beginning of the trial of the experimental In-service program and a post-test immediately following the program. A post, post-test was administered to determine whether or not the achievement change was retained. Form L of the Wide Range Achievement Test was used for this determination.

The teacher's effectiveness in using the Instructional materials presented was established through peer ratings by the teachers within each instructional team. Supervisory ratings were also obtained.

The value of the in-service model was to be determined by how successful it was in bringing about changes in measures which were considered to be indicative of the professional growth of teachers. Success, in this case, was the amount of change resulting.

Analysis of Data

A variety of statistical devices were used to analyze the data accumulated. These devices included: (1) the Fisher "t" for related samples, (2) the Fisher "t" for correlated means, (3) the Spearman Rank Correlation (rho), (4) the Kendall Coefficient of Concordance, (5) the Fisher Exact Probability, and (5) the Spearman Rank Correlation corrected for ties.

Computation was accomplished manually and with the aid of an electronic calculator. The .05 level of significance was used as the alpha level.
Of the twelve null hypotheses tested, two were concerned with the change in the attitudes of the teachers alone, two hypotheses with the relationship between attitude change and rating of teacher's use of materials, one with the attitude change of teachers and the achievement gain of the students, one hypothesis with the attitude change of teachers with specific characteristics, one hypothesis with the relationship between the achievement gain in homogeneously and heterogeneously grouped student groups, one hypothesis with the relationship between the Intelligence Quotient of the student and his achievement change, one hypothesis with the relationship between the achievement gain of students and their chronological age, one hypothesis with the relationship between peer and supervisory ratings of the teacher's use of materials, and two hypotheses with the significance of change in reading achievement of the students.

**Attitude Change.** The analyses of the data indicated that the teachers did not significantly change in their attitudes during the limited period of time covered by the experimental in-service program's trial; however, they did change significantly in their attitudes over a seven month period immediately following the experimental in-service program. Indications were also that any changes in the teachers' attitudes noted were neither significantly correlated to the achievement gain of the students nor with the ratings of the teacher's use of materials by either the teacher's peers or supervisor. In addition, the analyses indicated that there was no significant difference in the attitude change of the teachers: (1) who were prepared in Universities and those trained in teacher's colleges, (2) who had only three years
of teaching experience and those who had over three years, and
(3) who had Master's degrees and those who did not.

Achievement Change. Indications were that the gains made by the
students who participated in the trial of the experimental in-service
program were significant at the .05 level. These gains were found to
be retained by the students over a seven month period following the
program, but the rate of learning of the students decreased significantly
over the same period of time. Further indications were that there was
no significant difference in the achievement gain between the groups of
students regardless of whether or not the groups were homogeneous or
heterogeneous by sex and Intelligence Quotient. The achievement gain
noted in the students was not significantly correlated to the students' Inte-
ligent Quotient. It was, however, indicated to be significantly cor-
related to the chronological age of the students. It was also noted
that the achievement gain among the students was not significantly
correlated to the attitude change of the teachers.

Use of Materials. As was stated above, peer and supervisory ratings
of the use of material was not found to be significantly correlated to
the attitude changes of the teachers. However, peer ratings and
supervisory ratings were found to be significantly correlated.

Conclusions

The following conclusions seem reasonable in the light of the
data obtained by the implementation of the experimental in-service
program:

1. The in-service program could be considered effective in
achieving its objectives in that: (a) student reading
increased significantly, (b) teachers' attitudes changed significantly, (c) the teachers were prepared to satisfactorily utilize the instructional materials to which they had been introduced.

2. The improvement in instructional effectiveness of teachers of educable mentally retarded children might be realized by having them attend a program similar to the experimental in-service program utilized in the study.

3. The experimental in-service program was more advantageous in bringing about improvement in the reading skills of the educable mentally retarded children who participated than it was in bringing about immediate changes in teachers' attitudes.

4. The teacher attitudes changed significantly toward more positive attitudes after the experimental program ended and they returned to their regular classrooms.

5. Student grouping by sex, age, or IQ did not seem to be a significant contributing factor to consider when setting up student participation in an in-service program of the type presented in this study.

6. The relationship between teacher attitudes and student gain was not seemingly substantiated in the results obtained in this study.

7. Indications are that the experimental in-service program was effective as a means of improving the instructional effectiveness of teachers: (a) regardless of the amount of teaching experience they had, (b) regardless of the type
of training institution they attended, and (c) regardless of the amount of teacher training they had.

8. The students did improve in their reading skills more during the time they were in the program than during the period of time they spent in their regular classrooms immediately following the program.

9. The experimental in-service program did overcome the shortcomings of past in-service programs noted earlier in this study, with the possible exception of one. It is felt that insufficient emphasis was placed on obtaining any indication from the teachers who participated of what they needed. As a result, some of the material used was not appropriate for the age youngsters they teach during the regular school year. It is felt that this might have in some way affected the results of the study.

**Recommendations**

Although the findings reported here did not conclusively demonstrate the superiority of the experimental in-service program as a model for the design of a program for the professional in-service development of teachers of educable mentally retarded children, its results indicate that further consideration, with the following modifications, would be justified:

1. More concern be given to the teachers the program is to serve. Extreme care should be taken to determine the precise need of the teachers who are to participate and then to construct the program around their needs. The
needs should be expressed by the teachers themselves and not through administrative channels.

2. The in-service program include elements of teaching techniques and/or methods which have research evidence to indicate that they improve teacher effectiveness.

In addition, it is further recommended that:

1. The experimental in-service program be compared, in an experimentally controlled study, with other in-service programs to determine whether or not it is any more effective.

2. The study be replicated using other than EMR teachers and EMR students.

3. Replication of the study be made which would include in its evaluation the means to measure the effect of the experimental in-service program on the student population served by the teachers participating in the in-service program.

4. The experimental in-service program be applied as a year long continuous program during a regular school year (meeting bi-weekly for a complete day) and the results compared with the summer approach.
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APPENDIXES
APPENDIX A

Curriculum Process Model
This title may need a few words of explanation. The Curriculum Process Model is dedicated to educators, their clientele and, by implication, the improvement of the means by which their expectations are or should be realized—the curriculum.

The following presentation is the result of a lengthy search for a systematic 'means' to examine alternative proposals for curriculum changes. The 'means' has been given a title, THE CURRICULUM PROCESS MODEL. This title is significant; the emphasis is upon the word process. The Curriculum Process Model, (CPM), was developed over a period of years to aid in my searching for better answers to our pressing educational questions: (1) what should be taught, (2) by and to whom, (3) when, (4) how, (5) where, and finally (6) why?

What follows can better be understood if reference Is made to the tape recording which was made of the presentation at Raytown, Missouri, January 29, 1970. The implications of the word process will also be more apparent if the reader examines the schematic presentation (Figure 1) of the Curriculum Process Model.

In paragraph two above, several questions were raised, most of them employing a word beginning with the letter 'w'. That is, all excepting the word 'how', which I frequently spell w-o-h in order to secure uniformity. I am then able to refer to the "Six Big W's of Curriculum": WHAT, WHEN, WHERE, WHO, WOH, AND WHY. Although 'WHY' has been placed last in this order, it does not mean that it is to be considered last. As a matter of fact, the CPM assumes that there is a prior 'why' type question which underlies all of our thinking about curriculum and curriculum changes. Namely, on what bases do we make our decisions? In other words, why do we do what we do in curriculum? Is there any logic to our decision-making process?

The CPM will be described in detail in the following sections.

The CPM consists of six facets, each of which consists of a set of braces which enclose a specific aspect of the curriculum model. Perhaps it should be mentioned at this time that there is a deliberate intent to imply 'braces' rather than a more geometric enclosure, such as a square, triangle, cube or some such designate. Note, for example, that braces are open at the top and bottom. This is to suggest ease or ready availability of the data within each brace to the other facets in the model. Openness, rather than closed-ness is the intent of the model, therefore, its segments must also be "open".

Furthermore, there is the desire to employ the concept of input-output to curriculum development. We may not know just what, exactly, takes place within our "little black boxes". But that must not keep us from considering and acting upon the general assumption that for every input there is some output, in an educational sense.
Figure 1. THE CURRICULUM PROCESS MODEL

FACET I FACET II FACET III FACET IV FACET V FACET VI

Society's Values

Aims

Goals

Objectives

M2

Evaluation

Measurement

Feedback

Parley Rogers, Assistant Professor, School of Education, University of Kansas. This Curriculum Process Model (CPM) evolved between 1966 and 1969 as an aid to learning for this writer and his students of "curriculum" as we sought to visualize and to demonstrate the interdependent and sequential nature of the decision-making processes within the realm of curriculum development.
Fig. 1 reveals the CPM as having six facets, Facet I being labeled VALUES. The assumption is being made that our curriculum decisions are based (could be or should be based?) upon our system of values--those attitudes, skills, knowns, and understandings about people, things, and ideas which we and our society hold to be of value in our culture.

In order to become familiar with the underlying values, one would study philosophy, sociology, psychology, history; and perhaps cultural anthropology to provide an awareness of the nature and importance of the 'cement of society'. At this time, no attempt will be made to define or identify the parameters of each of these disciplines and their contributory values.

The second facet has been labeled OBJECTIVES. Within this facet would be located all considerations of our educational aims, goals, and objectives. These three terms are not used as synonyms in the CPM. Aim is the least specific and most broadly conceived term which suggests the direction in which movement is desired. Goal, is much narrower in that the curriculum designer now conceives of a limited area or segment of a larger whole. The use of the term objective implies specificity within that more general area or segment of the total range of attitudes, skills, knowns, and understandings--a desired behavior.

Facet III is perhaps more complex, at least in terminology: THE TEACHER/LEARNER CONFRONTATION-ENCOUNTER. It is within this facet that one ponders the nature of teachers and teaching and the nature of learners and learning. This facet also considers the range of strategies and their appropriateness within the context of the previous decision on aims-goals-objectives.

Another way of looking at this Confrontation-Encounter would be to consider that there are at least two kinds of curriculum: curriculum 'planned' and curriculum 'attained'. The term 'confrontation' refers to the 'planned' curriculum while the term 'encounter' suggests that the curriculum which is 'attained' by the learner must be by means of an 'encounter' with that which has been planned. This encounter takes place within the learner and is, therefore, a personal thing for each learner.

It is appropriate at this time to call attention to our values, especially in terms of our attitudes and beliefs about learners and teachers. "Practice What We Preach" could be a good sub-title for this facet.
FACET IV

In this facet, attention is focused upon our SELECTION OF APPROPRIATE METHODS AND MATERIALS OF INSTRUCTION. The design of the CPM should cause us to make such selections on the bases of that which we have decided in the three previous facets! If we assume that the 'what' to teach has been decided by our value system, then we should now consider the format and/or form which best "fits" the decisions made in Facets I, II, and III.

The same should be said about the need for teaching congruency in our learning methods. There is a curricular "law" which says that the means and the ends must be kept in harmony. We must strive for internal consistency in designing the curriculum.

FACET V

The fifth Facet is labeled EVALUATION/MEASUREMENT. It is appropriate at this time in the curriculum design process to give attention to determining whether or not, and to what extent, our curriculum 'planned' has been 'attained'. In other words, has the 'encounter' taken place as we have planned and hoped for? If so, how much of our planned curriculum have we realized?

The basic question to ask in this facet would be: To what extent have the learners attained our desired aims, goals and objectives? A parallel question would relate to the means by which the extent of the attainment would be determined. Once we are able to decide what it is we wish to determine, it seems logical to ask whether or not we should measure or evaluate the outcomes of instruction. This last consideration is mentioned because there has been a very strong tendency to measure, and, on the basis of these obtained 'facts', make judgments related to value of a particular instructional product.

It is with this dichotomy in mind that Facet V is labeled Evaluation/Measurement. The base of evaluation is value! Quite often, and sometimes even by necessity, we confuse measurement and evaluation. Just because a thing cannot be measured doesn't mean that it doesn't have value in terms of educational aims-goals-objectives.

FACET VI

A process model, such as the Curriculum Process Model, would fall short of its potentiality if it did not provide the means whereby the process could become self-renewing and continuous. The process is made continuous by providing Facet VI, entitled FEEDBACK.

It is assumed that the data obtained in Facet V will be fed back to each of the preceding five facets. Without provisions for feedback, the CPM does not become self-perpetuating and self-renewing.
All too often, data obtained via measurement or evaluation is placed in someone's file cabinet and thus in effect becomes the 'end product' of the entire curriculum!

It is within the province of this facet to ask such questions as the following:

1. Were our evaluative criteria appropriate to the measuring/evaluating instrument employed?
2. Who should receive what data on attainment?
3. Of what future curricular use is the obtained data?
4. What does the data tell us about the rationality of the selected value system?
5. Did we attain our desired aims-goals-objectives?
6. Were our aims-goals-objectives suitable for our specific learners?
7. Were our teaching strategies congruent with our aims-goals-objectives as well as our teachers and learners?
8. Were the selected instructional materials and methods appropriate for our: (a) values, (b) aims-goals-objectives, and (c) teacher/learner confrontations?
9. What about the nature and suitability of the channels of communication employed in obtaining feedback?

Facet VI, FEEDBACK, provides the 'proof of the pudding', doesn't it? In the process of utilizing the CPM, one can best realize the utility of the model—DOES IT ENABLE CURRICULUM DEVELOPERS TO EXAMINE THAT WHICH THEY DO IN A SYSTEMATIC, MEANINGFUL, AND REWARDING MANNER? If the answer is 'yes', then let it be put to work for the improvement of learning by means of more effective teaching.
APPENDIX B

Material Used in Program
Materials Used in In-service Program

ITEM

Basic Songs for Exceptional Children, Volumes 1, 2 & 3

Peabody Language Development Level I & Level II

Language Master & Cards

Cyclo-teacher

Color-Shape Discrimination Set

Frostig (Move, Grow, and Learn) Skill Cards

Language Experiences in Reading L-1, L-II

Hoffman Information System
Reading Achievement Program
100-1, 100-2, 100-3

Parkinson Program for Special Children

Records—Development of Body Awareness and Position in Space

ADDRESS

Children's Music Center Inc.
5373 West Pico Blvd.
Los Angeles, California 90019

American Guidance Services
Circle Pines, Minnesota

Audio-Visual Division
Photo and Field Company
1205 North 45th Street
Seattle, Washington 98103

Department C-T
Field Enterprises Education Corporation
Merchandise Mart Plaza
Chicago, Illinois

ETA
159 W. Kinzie Street
Chicago, Illinois

Follet Educational Corp.
1010 W. Washington Blvd.
Chicago, Illinois 60607

Frank Bangs & Company
2022 Main Street
Kansas City, Missouri

Follet Educational Corp.
1010 W. Washington Blvd.
Chicago, Illinois 60607

Educational Activities Inc.
3402 M
Freeport, Long Island, New York
APPENDIX C

Equipment Used in In-service Program
<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reel-audio-tape recorder</td>
<td>5</td>
</tr>
<tr>
<td>three speed record players</td>
<td>5</td>
</tr>
<tr>
<td>overhead projectors</td>
<td>5</td>
</tr>
<tr>
<td>carousel slide projectors</td>
<td>1</td>
</tr>
<tr>
<td>opaque projector</td>
<td>1</td>
</tr>
<tr>
<td>Video tape recorder (1/2&quot;)</td>
<td>5</td>
</tr>
<tr>
<td>Video camera</td>
<td>5</td>
</tr>
<tr>
<td>microphones</td>
<td>5</td>
</tr>
<tr>
<td>audio visual charts</td>
<td>10</td>
</tr>
<tr>
<td>Language Master</td>
<td>5</td>
</tr>
<tr>
<td>Hoffman Reader</td>
<td>3</td>
</tr>
<tr>
<td>Study Master</td>
<td>2</td>
</tr>
</tbody>
</table>
APPENDIX D

First Weeks Schedule
INTRODUCTION:

The basic purpose of this portion of the program is to present either through actual or simulated demonstration the use of the various materials listed in the letter which you received recently. Where possible actual children will be used to demonstrate the use of materials, but where not special effort will be made to make the presentations as realistic as possible.

Each of the presentations will be video-taped so that teachers will be able to refer back to them during the portion of this program in which they will actually get to try the materials out on students.

Teachers are encouraged to criticize any time during the presentations when they feel that presentations are not in line with their beliefs. Remember your contributions are going to be as valuable to this program as are those that are making the presentations. The people being invited to make presentations will be more than willing to make any presentation changes suggested by the participants in this program.

Schedules will be handed out weekly. This will provide us with the opportunity for greater flexibility.
1st Week Schedule

June 1 - June 5

INTRODUCTION TO MATERIALS

June 1  Welcome: Marjory Farrell, Director Special Education, Kansas City, Missouri School District.

9:00 a.m. Description of KU Extension Portion of Inservice Program: Dr. Munro Shintani, Assistant Professor of Education Dept. of Special Education, University of Kansas, Lawrence, Kansas.

June 2  Material presentations continued:
  a. Video-tapes for special children - Jesse LaPuma, Missouri State Dept. of Education
  b. Use of Video-tape equipment in the classroom and for self-improvement
  c. Use of audio-tape recorder in the classroom and for self-improvement
  d. Use of the overhead projector in the classroom for visual stimulation.

June 3  Material presentations continued:
  a. Peabody Language Development Kit - Judith Wilson, Special Education Instructional Material Center, Lawrence, Kansas
  b. Use of the Study Master as a supplement to the teaching of Language Development
  c. Use of the Language Master as a supplement to the teaching of Language Development
  d. The use of Records to enrich Language Experiences

June 4  Material presentations continued:
  a. Language Experience in Reading - Dr. Austin Connelly, Dept. of Special Education, University of Missouri, Columbia, Missouri
  b. The use of the Language Master as a supplement to the teaching of Language Experiences
  c. The use of Records to enrich Language Experiences

June 5  Material presentations continued:
  a. Frostig Materials, William Smoot, Representative, Follett Educational Corporation
  b. Color-Shape Discrimination as cues to the beginning of reading
  c. The Cyclo-teacher as a supplement to the teaching of reading & language development
  d. Preparation for next week's activities
APPENDIX E

Letters to Elementary Principals
Memo to: Principals of Elementary Schools

From: Marjory Farrell, Director of Special Education

Re: Summer School Opportunity for Mentally Retarded

The Department of Special Education is pleased to offer a four-week summer school program for thirty children, ages 8 to 12, who are mentally handicapped (I.Q.'s on individual testing, 48-65). This opportunity comes as a result of an approved Title VI-A grant.

The program for the children will be in effect a demonstration school for an in-service program for fifteen teachers of the retarded. A multi-media approach to instruction and curriculum will be utilized; video taping of teaching sessions will be a feature of the program. Participants of the in-service course and consultants from the University of Missouri, the University of Kansas, and commercial firms will work with the children in demonstration of materials.

The summer school for the thirty children will begin June 8 and end July 6. Bus transportation will be provided. Location will be the Mary Harmon Weeks School.

Because of the very limited enrollment of this demonstration school, pupils must be carefully screened as to criteria. If you have some pupils in your special classes who meet these criteria and whose parents, you believe, will be willing for their children to enroll, will you please send to them the enclosed flyers and application blanks?

Deadline for return to this office must be May 4, since all applicants must be screened and parents of those to be enrolled must be contacted.

Suggested deadline for return of the enrollment slips by parents to you is Friday, May 1.

Thank you for your help. We think this will be a fine opportunity for children to be a part of a different and exciting summer program.
APPENDIX F

Questionnaire to Parents or Guardians
MARY HARMON WEEKS SUMMER SCHOOL  
4201 Indiana  

June 8 - July 6  

Name of Pupil ________________________________________________________________  
Address of Pupil ______________________________________________________________  
Telephone Number ______________________________________________________________  
Birthdate of Pupil ____________________________________________________________________  
Pupil is now enrolled in __________________________________________________________  
Name of "Sitter" - if you have one ________________________________________________  
Address of "Sitter" ________________________________________________________________  
Telephone Number of "Sitter" _______________________________________________________  
Place of employment of Parent or Guardian ____________________________________________  
Telephone Number of Employer _____________________________________________________  

PERMITS  

☐ Yes My child may go, under supervision of the school, on trips which may necessitate leaving the school grounds during the present summer term.  

☐ No  

☐ Yes My child may participate in swimming if it is offered.  

☐ No  

(Signature of Parent or Guardian)
APPENDIX G

Letter to Parents Following Selection of Child
Dear Parents:

Your child has been selected to participate in the SPECIAL SUMMER PROGRAM FOR VERY SPECIAL CHILDREN to be held at the Mary Harmon Weeks Elementary School at 4201 Indiana. Classes will begin June 8 and end July 2. They will begin at 9:00 a.m. and end at 12:00 noon.

The bus route has not yet been set so it is recommended that you have your child ready to be picked up by 8:00 a.m. on Monday, June 8. After the first day, schedules will be sent home with your child.

We believe that this program will improve the education of your child and we would like to invite you to visit whenever you wish. The program will involve the use of some of the latest educational materials and equipment which are designed to improve children's listening, talking, and reading abilities.

During the week of June 1 thru June 5 you are invited to attend demonstrations of the use of this material and equipment. These demonstrations should be very interesting. They are scheduled to begin at 9:00 a.m. and to end at 3:00 p.m. They will also be held at the Mary Harmon Weeks School.

If you have any questions regarding this program please do not hesitate to call this office, Ba 1-7565 ext. 258 before June 1. After June 1, please call the Mary Harmon Weeks school, Un 1-9370.

Respectfully,

Marjory Farrell, Director
Special Education
APPENDIX H

Letter to Teachers
Dear

This letter is our initial contact for what I feel, for all involved, is going to be six weeks of "fun and learning for every one".

In this summer program there will be considerable opportunity for everyone involved to plan, teach, observe, and relax.

It is my belief that no inservice program is complete unless those participating are involved in the development of the program. Therefore, it is hoped that as the program begins you will advise us as to how things might be changed to improve it. If we can, as a team, develop an inservice program which you can feel comfortable using then this is what we want to do, but we will need your help.

The program will be divided into two separate but not disconnected parts. The THEORETICAL part of the program will be that part for which you are receiving college credit and the PRACTICAL will involve that part of the program in which you will actively be participating in the application of theory combined with the learning through demonstrations. The materials to be included in the summer program will include the following:

1. Records:
   a. Motor training
   b. Development of Body Awareness

2. Color-Shape Discrimination Set - ETA

3. Parkinson Program for Special Children

4. Frostig (Move, Grow, and Learn) Skill Cards

5. Language Experiences in Reading Program - L-I; L-II

6. Hoffman Information System - Reading Achievement Program

7. Peabody Language Development Kit

8. Cyclo-Teacher

9. Language Master

10. Use of Video-Tape Equipment

11. Audio-Tape recorder

12. Overhead Projector
Concentration will be placed on the use of the Peabody Language Development, Parkinson Program, and Language Experiences in Reading materials. The remaining materials will primarily be used or/and demonstrated as supplemental materials. All of the material will be demonstrated prior to your use.

Each teacher will have the opportunity of using all of the material demonstrated in small classes (six students) and will have the opportunity to self-critique themselves using video-tape equipment (which you will be able to use proficiently by the time you are scheduled to practice using the material).

The schedule for the program will be forwarded to you at a later date.

I look forward to meeting and working with you this summer.

Respectfully,

Kenneth A. Martinez,
Consultant

KAM: vah
APPENDIX I

Rating Scale
Teacher Evaluation

The teacher evaluation that follows is to be based on a subjective evaluation of teacher performance. Please use criteria established in presentations, and demonstrations in this evaluation.

Rating Scale:

1 = Superior
2 = Above Average
3 = Average (acceptable performance)
4 = Below Average

1. Use of Video-tape equipment
2. Use of Hoffman material and equipment
4. Use of overhead projector
5. Use of Language Master
6. Use of Parkinson program
7. Use of concept records
8. Use of Language Experience materials
9. Use of all other materials

Total =
Average =
APPENDIX J

Letter to Parents Following Program
June 25, 1970

Dear __________________,

We hope that your child has enjoyed classes this summer. We hate to end such a pleasant program, but classes will end this Thursday, July 2nd. . . there will be no class on Friday, July 3, 1970.

If you have any questions regarding your child's progress this summer, please do not hesitate calling 861-9370.

Thank you very much for your cooperation this summer.

Respectfully,
APPENDIX K

Teaching Skills
Communication between the teacher and her students is essential in teaching. Therefore, the most important quality of a teacher can have is the ability to communicate well. Almost everything he or she does in the classroom involves communication. The exercises which follow focus directly on the development of this competency.

In most teaching situations teachers tend to limit themselves to a small number of verbal and nonverbal responses... which they use without variation. However, a response tends to lose meaning if it is not altered in some respect to fit the occasion.

One way a teacher can broaden his range of responses is to practice giving them in a variety of ways. The exercises which follow will provide the opportunity for the participants to practice responses this summer. It is hoped that through this practice the teacher participating will acquire new responses which will feel comfortable using during the coming year.

The exercises are divided into three CLUSTERS which deal with simple, basic communication.

1. Verbal Responses.
2. Nonverbal Responses.
3. Verbal and Nonverbal Responses.

When practicing the Verbal Response cluster you should use the list of utterances provided and practice conveying at least three different meanings each time. The second cluster, Nonverbal Responses, will require you to practice conveying selected feelings or emotions through a variety of nonverbal behaviors. In the final cluster responses that combine verbal and nonverbal elements should be practiced. To do this you should use the same verbal responses as in the first cluster. Each response should be delivered three times, each time using a different meaning and combining the verbal statement with an appropriate nonverbal situation.

To achieve full advantage from these exercises you should think of yourself as an actor practicing your lines and movements. The exercises should be practiced either in private or, should you desire, in the presence of a Teacher Team member. If the exercises are done in private, some means of feedback (audio tape for Verbal Responses and video tapes for the other two clusters) should be used. These pieces of equipment can also be used effectively when other members of the Teacher Team are invited to assist in observing or listening. IT IS NOT NECESSARY TO TAPE THE ENTIRE PRACTICE SESSION.
VERBAL RESPONSES

The verbal responses you will find on the following pages are an assortment of remarks that a teacher might make in a classroom. Each can be delivered in several different ways. Your task is to read the statement at least three times, each time conveying a different meaning. To give you some cues, we have provided a list of different meanings, feelings, and emotions you might choose to convey. Practice conveying as many of these meanings as you can. For example, in stating "I don't care," you might try to impart anger, then indifference, and finally resignation. By saying "Figure it out," you might try to convey sarcasm, impatience, and encouragement.

Try to express the meaning you want through the tone, inflection, pitch, and emphasis of your voice. In a later exercise you will have the opportunity to add facial expressions, gestures, and body movements to your oral statements, thus increasing the power by relying on oral statements, thus increasing the power of each communication. But for now, develop your communicative power by relying on oral statements alone.

One effective way to convey particular meaning in a statement is to emphasize particular words. In the statement "I don't care," emphasis on the "I" means that the speaker doesn't care, but that someone else may care. By emphasizing "don't" the speaker imparts the negative aspects of the statement. Perhaps a listener thought the speaker said, "I do care"; the emphasis on "don't" serves as clarification.

The purpose of this exercise is to increase your effectiveness in oral communication by developing a range of voice pattern to convey different meanings. Practice of this nature should help you communicate more effectively with your students.

PROCEDURES

1. Select the verbal responses you want to work on individually.
2. Study the list of statements you will deliver. Read the list of meanings, feelings, and emotions and choose three meanings you want to express for each of the statements you chose in #1. Write each intended meaning in the space provided.
3. Each teacher in the teacher team should practice his or her meanings with the aid of an audio tape recorder. Before putting the meaning on tape, if the teacher so desires, practice might be accomplished by going to some other part of the building and practicing without the tape recorder. When the teacher feels he or she is ready return to suite #5 and place their responses on the tape. This can be done in the presence of the other team members or alone. After placing the response on the tape the teacher should then listen to the recording and determine for herself whether or not the meaning desired comes across. Each teacher should practice the responses using the tape recorder until he or she feels that the meaning desired is conveyed. After this has been accomplished the teacher should call the other team members over and have them listen to the responses and try to guess the meanings implied. This can be accomplished in a number of ways, which will be brought out in the presentation.
4. TO BEGIN WITH EACH TEACHER SHOULD SELECT ONLY one (1) VERBAL RESPONSE TO WORK ON.
### VERBAL RESPONSES BY CATEGORIES

<table>
<thead>
<tr>
<th>Commands and Requests</th>
<th>Meanings</th>
<th>Emotions</th>
<th>Feelings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sit down.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>2. Stand up.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>3. Look</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>4. Open your books</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>5. Be specific</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>6. Turn around</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>7. Help me decide</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>8. Come here</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>9. Have your father call me</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>10. Everyone stand up</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>11. Put your comb away</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>12. Come up to my desk</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>13. No more talking</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>14. Help him</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>15. Do your own work.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>16. Tell me about it</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>17. Cool it</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
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</table>

### QUESTIONS

<table>
<thead>
<tr>
<th></th>
<th>Meanings</th>
<th>Emotions</th>
<th>Feelings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. May I see?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>2. Did you think of that?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>3. How do you know?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>4. What do you think?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>5. Do you know what to do?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>6. What do you do next?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>7. Who threw it?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>8. Is it possible?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>9. What did you say?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>10. Why don't you?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>11. Did you notice what happened?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>12. What do we do next?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>13. How do you feel?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>14. Do you agree?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>15. What?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
</tbody>
</table>

### REINFORCEMENT

<table>
<thead>
<tr>
<th></th>
<th>Meanings</th>
<th>Emotions</th>
<th>Feelings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Good</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>2. Fine</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>3. Excellent</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>4. Very good</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>5. Good question</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>6. Pretty good</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>7. Yes, that's right</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
</tbody>
</table>
DECLARATIVE STATEMENTS

1. I'm sorry
2. That's not it
3. I don't know
4. I hear noise in the back of the room
5. No, you may not sharpen your pencil
6. I didn't hear you
7. That's a possibility
8. You're welcome
9. He did it
10. Show me
11. Give me one reason
12. I'm sorry
13. If you really want to
14. That's almost right
15. Forget it
16. Try again
17. Certainly
18. Now I understand

UNCLASSIFIED

1. Yes
2. No
3. Maybe
4. Suppose
5. Boys

MEANINGS, FEELINGS, OR EMOTIONS

1. satisfaction
2. enthusiasm
3. tenderness
4. kindness
5. humor
6. interest
7. approval
8. hope
9. encouragement
10. doubt
11. anger
12. defiance
13. threat
14. dissatisfaction
15. Impatience
16. sarcasm
17. uncertainty
18. helplessness
19. disgust
20. indifference
21. resignation
22. noncommittal
23. determination
24. conviction
25. superiority
26. surprise
27. questioning
28. puzzlement
29. concentration
NONVERBAL RESPONSES

Nonverbal responses—gestures, facial expression, and body movements—are an important part of effective communication. In the previous exercise, you tried to express meaning through verbal responses only. In this exercise, you should try to communicate through nonverbal responses alone.

Nonverbal responses can be used to clarify ambiguous oral statements. They can also be used to emphasize the meaning of a statement.

In the next handout you will be asked to combine verbal and nonverbal response.

In this exercise you should practice gestures, facial expressions, and body movements often used in the classroom.

Just as in the practice with verbal responses choose the meanings or feelings you want to convey; then write the meaning in the space provided by the appropriate nonverbal behavior. In many cases, combinations of nonverbal behavior will convey your meaning better than a single nonverbal behavior would do. Feel free to try to combine nonverbal behaviors when you feel it is appropriate.

The use of video-tape equipment is suggested.

Meaning, Feeling or Emotion

1. Raised eyebrow
2. Frown
3. Nod head
4. Smile
5. Motion with hand to come near
6. Motion with finger to go away
7. Place finger to lips to indicate silence
8. Cock ear
9. Assume "Think" pose
10. Move from one part of room to another
11. Point finger at someone
12. Move hand in circular motion
13. Hold hands out with palms upward
14. Hold chin in hand, look thoughtful
15. Scratch head
16. Purse lips
17. Clasp hands together
18. Snap fingers
19. Bite lower lip
20. Gesture to sit down
21. Gesture to stand up
22. Look at floor
23. Look at ceiling
24. Look intently at student
25. Tap pencil on pen

Meanings, Feelings, Emotions

Use the same ones found in verbal exercises.
The purpose of this exercise should be to practice combining the verbal and nonverbal responses.

For each statement which appears on the verbal exercise sheet choose three meanings and practice combining selected verbal and nonverbal responses techniques to convey the meaning, feeling or emotion desired.

For example you may want to point your finger and also nod your head while saying "very good".

It is suggested that the procedure outlined for practicing the verbal exercise be used here except that the video-tape equipment be used in place of the audio-tape recorder.
APPENDIX L

Teacher Personal Data Questionnaire
PERSONAL DATA QUESTIONNAIRE

Background Information

Name______________________________

Home phone________________________

School phone_______________________

Home Address_______________________

<table>
<thead>
<tr>
<th>Degrees held</th>
<th>Major</th>
<th>College</th>
<th>Date</th>
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</thead>
<tbody>
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</table>

List workshops or courses in Special Education taken within the last 5 years:

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

List four professional periodicals which you read regularly:

____________________________________________________________________
____________________________________________________________________

Background Experience

Number of years taught___________

Grade levels_____________________

Experience other than those with the self-contained classroom

____________________________________________________________________

Have you had college teaching experience_______________________________

Have you ever worked with a student teacher___________________________

Have you ever worked with educational television_______________________

List professional organizations to which you belong_____________________

____________________________________________________________________