



The effects of instruction in the Hunter Instructional Model on teachers' sense of efficacy
by Ronald Ray Bolinger

A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Education
Montana State University

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Abstract:

This study investigated the effects of training in the Hunter Instructional Model and Teachers' Sense of Efficacy, an important expectation of performance for teachers based on Bandura's two-factor theoretical model of self-efficacy. Overall Efficacy was clarified by Ashton and Webb to include the Sense of Personal Efficacy, or the assessment by the individual teacher of his/her own competence, and the Sense of Teaching Efficacy, or the expectations that teaching can influence student learning.

The purpose of the study was to determine if a teaching model such as the Hunter Instructional Model, which is designed to enhance individual teachers' skills and effectiveness, also contributed to their attitudes and feelings about how well they can perform their jobs and their feelings of whether they can effect student learning.

Further, the study determined whether the variables of gender, grade level of students taught, teachers' experience, and the ability level of the students made a significant difference in Teachers' Sense of Efficacy.

The Teacher Efficacy Scale, designed by Sherri Gibson, was used as the major instrument to gather the information based on a pre/post mean change score design. A series of two-way and one-way analysis of variance measures were used as the statistical measurements. A t-test was applied to determine the significant difference between the pre/post mean change scores.

The study determined that training in the Hunter Instructional Model significantly changed the attitudes and opinions of the teachers about their ability to teach (Personal Efficacy) and their Overall Efficacy, but did not promote a significant change in the teachers' attitudes about students' ability to learn (Teaching Efficacy). Further, the study determined that the teachers' experience and grade level taught made a significant difference in Personal Efficacy and Overall Efficacy.

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by

Ronald Ray Bolinger

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Doctor of Education

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Bozeman, Montana

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APPROVAL

of a thesis submitted by

Ronald Ray Bolinger

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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ABSTRACT

This study investigated the effects of training in the Hunter Instructional Model and Teachers' Sense of Efficacy, an important expectation of performance for teachers based on Bandura's two-factor theoretical model of self-efficacy. Overall Efficacy was clarified by Ashton and Webb to include the Sense of Personal Efficacy, or the assessment by the individual teacher of his/her own competence, and the Sense of Teaching Efficacy, or the expectations that teaching can influence student learning.

The purpose of the study was to determine if a teaching model such as the Hunter Instructional Model, which is designed to enhance individual teachers' skills and effectiveness, also contributed to their attitudes and feelings about how well they can perform their jobs and their feelings of whether they can effect student learning.

Further, the study determined whether the variables of gender, grade level of students taught, teachers' experience, and the ability level of the students made a significant difference in Teachers' Sense of Efficacy.

The Teacher Efficacy Scale, designed by Sherri Gibson, was used as the major instrument to gather the information based on a pre/post mean change score design. A series of two-way and one-way analysis of variance measures were used as the statistical measurements. A t-test was applied to determine the significant difference between the pre/post mean change scores.

The study determined that training in the Hunter Instructional Model significantly changed the attitudes and opinions of the teachers about their ability to teach (Personal Efficacy) and their Overall Efficacy, but did not promote a significant change in the teachers' attitudes about students' ability to learn (Teaching Efficacy). Further, the study determined that the teachers' experience and grade level taught made a significant difference in Personal Efficacy and Overall Efficacy.

CHAPTER 1

INTRODUCTION

In the last ten years, there has been a great deal of research in the school improvement literature concerning teacher effectiveness. The literature points out various teaching models with the objectives for improving teacher behaviors to "increase the likelihood of learning" (Hunter, 1985). For example, there are various models of teaching as outlined by Bruce Joyce (1983), in addition to specific research that has detailed methodologies that teachers can use to improve instruction (Bennett, 1978).

Madeline Hunter developed and presented the Hunter Instructional Model to many teachers and school districts across the country. The model is based on psychological principles and learning theory from a variety of educational researchers. Translating "theory into practice," the Hunter Model purports to undergird the teaching decisions made by every teacher into meaningful classroom instruction (Hunter, 1979).

Madeline Hunter has been lauded as "one of today's foremost practitioners in the areas of teaching and learning" (Lambert, 1985, p. 68) and has had "more

influence on teachers in the last ten years than any other person" (Brandt, 1985, p. 61).

Proponents of the model indicated that it shows teachers the value of studying the process of teaching, as well as the content to be taught (Freer and Dawson, 1987).

Freer and Dawson noted:

There exists a vast chasm, which educators have called the theory-to-practice gap. Madeline Hunter has been busily filling it for years with propositional and conditional knowledge, based on research, subject to further testing, but joyfully recognized as truth by administrators and teachers afflicted with a pragmatic hunger for practical approaches (p. 68).

The Hunter Instructional Model is not without its critics. One of the most often noted criticisms is that there has been little scientific research to support the model (Gibboney, 1987a; Davidman, 1984; Slavin, 1987).

Several studies have investigated the success of various instructional improvement programs. As noted by Thomas Guskey, "Few have assessed the . . . effects of [instructional improvement programs] upon teachers" (Guskey, 1985, p. 378).

Guskey continued:

There is some evidence that indicates that when teachers adopt more effective instructional practices and gain evidence of increased learning among their students, they accept greater personal responsibility for their students' learning and feel more positively about teaching (p. 378).

In 1976 and 1977, the Rand Corporation sponsored two comprehensive studies dealing with the cognitive social

learning theory defined as "the extent to which a teacher believed he or she had the capacity to affect student performance" (Berman et al., 1977, p. 137). Later the concept, based on Albert Bandura's (1977) self-efficacy cognitive social learning theory, was refined and further applied to education by Patricia Ashton and Rodman Webb (1986) in which they defined it as "teachers' situation-specific expectation that they can help students learn" (p. 3). Ashton and Webb further clarified teachers' sense of efficacy in two dimensions: (1) Sense of Teaching Efficacy, or the expectation that teaching can influence student learning, and (2) Sense of Personal Teaching Efficacy, or the assessment by the individual teacher of his/her own teaching competence. These two dimensions together make up the Overall Teachers' Sense of Efficacy (Ashton and Webb, 1986).

In order to study the effects that an instructional improvement program such as the Hunter Instructional Model has on Overall Teachers' Sense of Efficacy and its dimensions, the following problem statements are presented.

Statement of the Problem

The problems of the study were:

- (1) To determine if there was a significant difference in teachers' Overall Efficacy after instruction in the Hunter Instructional Model.

- (2) To determine if there was a significant difference in Teaching Efficacy after instruction in the Hunter Instructional Model.
- (3) To determine if there was a significant difference in Personal Efficacy after instruction in the Hunter Instructional Model.
- (4) To determine if there was a significant difference in teachers' Overall Efficacy based on gender, grade level of teaching, years of teacher's experience, and the ability level of the students being taught.
- (5) To determine if there was a significant difference in Teaching Efficacy based on gender, grade level of teaching, years of teaching experience, and the ability level of the students being taught.
- (6) To determine if there was a significant difference in Personal Efficacy based on gender, grade level of teaching, years of teaching experience, and the ability level of the students being taught.

Need for the Study

Although the Hunter Instructional Model has been used extensively, a frequently heard criticism is the lack of research evidence in supporting the claim that the model improves learning, as well as teachers' sense of efficacy. Most recently, Gibboney (1987a) noted:

Without a solid pattern of evidence to support the claim for improved learning, there is no scientific basis for the Hunter Model. The links she infers (I cannot use the term cause and effect) between learning theory and roles for teaching have not been demonstrated. Even the basis for the model, learning theory, can be questioned if the criterion for testing in educational settings is applied (p. 48).

Others, including Leonard Davidman (1984) of the California Polytechnic State University, reviewed several teaching models in general, and the Hunter Instructional Model specifically, and concluded that "the Hunter Model should undergo research-based scrutiny just as other models and theorists about learning have" (p. 11).

Hunter has addressed the need for further research, while defending past and present studies of her work. In a conversation with the writer, she stressed the importance and need of further studies, especially in the areas of student gains and teacher behavior (Hunter, 1985a).

In 1979, Patricia Ashton and Rodman Webb began an intensive study specifically addressing the concept of teachers' sense of efficacy which they defined as "the extent to which teachers believe they can affect student learning" (Ashton and Webb, 1986, p. vii). The conceptual framework of self-efficacy had been researched by Albert Bandura and others as psychological constructs. Ashton and Webb felt that "teachers' sense of efficacy might be an important construct to further our understanding of the

motivation [and attitudes] of teachers" (Ashton and Webb, 1986, p. vii).

According to Bandura, the efficacy theory noted that teachers' efficacy "influences their thoughts and feelings, their choice of activities, the amount of effort they expend, and the extent of their persistence" (Bandura, 1981, pp. 200-201). In addition, several constructs of the Hunter Instructional Model parallel the dimensions of teachers' Sense of Efficacy. According to Hunter (1985b), the concept that every student can be reached by a "skilled, artful" teacher is an assumption which corresponds to the Sense of Teaching Efficacy dimension. Further, the major purpose of the model addresses the idea of increasing personal teaching competence which corresponds to the Sense of Personal Efficacy dimension.

Several Hunter Instructional Model studies have been conducted, including the Beginning Teacher Evaluation Study in Napa/Vacaville (Robbins and Wolfe, 1987; Stallings, 1985), a four-year study in California, which provided supportive data. The Hunter Instructional Model was first validated by Project Linkage, a state-funded grant provided by the California State Department of Education (Hunter, 1987). In addition, research papers and dissertations have been completed regarding specific areas of the model.

Nonetheless, according to the critics of the model, there has not been a satisfactory research base

demonstrated for the Hunter Model (Gibboney, 1987b; Slavin, 1987).

Hunter (1987) noted the main strength of the program and the reason for its popularity is that, according to teachers, "it works."

She continued:

After a day in 'the trenches,' teachers and administrators have neither the inclination nor energy to wade through research--particularly when they find these research-based learning principles corroborated by common sense to be effective (p. 52).

Davidman (1984) believed the assessment of the popularity of the Hunter Instructional Model was due to the fact that it raises the status of the teaching profession and "fulfills important teacher needs" (p. 11).

To elaborate on this point, Davidman continued:

The line of reasoning which supports this view is that the model gives experienced teachers new labels for the kinds of teaching behaviors they already manifest, to some degree. Thus, the model, for many teachers, provides positive reinforcement for what they're already doing, or agree that they should be doing. After completing [the program], teachers can see what was only dimly perceived prior to the program, namely that they are already utilizing most, but not all, of the instruction [principles] (pp. 11-12).

Davidman believed that the Hunter Instructional Model gives teachers and their administrators their own "scientifically sanctioned, very precise, commonly understood vocabulary which can be utilized in conversations with other teachers, administrators, parents, [etc.]" (p. 12).

Davidman continued:

Although it has not been established empirically, I believe the above mentioned factors provide many teachers with a greater sense of intellectual, or cognitive, control over their very complex work environment. This control, in turn, may contribute to anxiety reduction, and higher degrees of teacher satisfaction and morale, as well as improved instructional techniques (p. 12).

The end result, according to Davidman, is that "many teachers, because of the . . . model which is now their tool, feel more professional" (p. 12). He concluded, "Certainly the possibility that this is true calls for more investigation into the alleged phenomena" (p. 12).

The research concerning teachers' sense of efficacy, although not labeled specifically, addresses Davidman's belief as noted by the studies of Ashton and Webb (1986) and others.

Ashton and Webb (1986) noted:

The results of our research indicate that teachers differ in their efficacy attitudes, and these differences are reflected in teachers' behavior and students' performance (p. viii).

Ashton and Webb (1986) included as "particularly relevant for the design of research to enhance teachers' sense of efficacy" among others, teacher education programs.

Madeline Hunter (1985b) agreed with Davidman concerning the need for additional research of her work in noting that:

Models are judged on their ability to guide behavior, predict outcome, and stimulate research; not on being the final answer. My model was developed to accomplish all three purposes. If it has contributed to educators' use of research-based knowledge to make and implement more successful professional decisions, if it encourages the constant addition of new research-based propositions to guide future actions of teachers and administrators, if it results in increased teacher and student success and satisfaction in schooling, then it will have served its purpose (p. 60).

Bruce Joyce (1983) noted:

Models can bring about specific changes in a teacher's teaching [techniques] and that one objective of training teachers is to help them acquire a variety of models of teaching which they can use according to their judgement (p. 81).

Carroll (1963) pointed out:

Such a model should use a very small number of simplifying concepts, conceptually independent of one another and referring to phenomena at the same level. . . . It should suggest new and interesting research questions and aid in the solution of practical educational problems (p. 723).

As is noted by Gorton (1982):

. . . beyond the issue of the improvement of teacher satisfaction and morale lies the even more basic issue of the relationship between improving teacher satisfaction and morale and increasing teacher productivity. It is the latter issue that is likely to assume greater importance in the 1980's and beyond, and it deserves more attention on the part of theorists, researchers, and education managers (p. 1907).

Research has shown that "teaching practices and behaviors are generally strongly and consistently related to student learning and, hence, to teachers' effectiveness

in the classroom" (Brophy and Evertson, 1976). This study attempted to determine if training in the use of the Hunter Instructional Model, which is intended to improve teachers' effectiveness, also improves teachers' sense of efficacy. In addition, it provided "further investigation of the relationships between teacher characteristics (i.e., sex, years of teaching experience, grade levels) and sense of efficacy," as recommended by Sherri Gibson (1983, p. 106) in her study.

General Questions to Be Answered
by the Study

- (1) Was there a statistically significant change in Teachers' Sense of Overall Efficacy after they complete training in the Hunter Instructional Model?
- (2) Did gender, level of teaching, years of teaching experience, or ability level of students being taught have any effect on Teachers' Sense of Overall Efficacy after completing training in the Hunter Instructional Model?
- (3) Did teachers change their attitudes and opinions about their own ability to teach after training in the Hunter Instructional Model?
- (4) Did teachers change their attitudes and opinions about students' ability to learn after training in the Hunter Instructional Model?

- (5) Did teacher characteristics such as gender, grade level of teaching, years of teacher's experience, and the ability level of the students being taught have any effect on the Teaching Efficacy of the teacher after completing training in the Hunter Instructional Model?
- (6) Did gender, grade level of teaching, years of teaching experience, and the ability level of the students being taught have any effect on the Personal Efficacy of the teacher after completing training in the Hunter Instructional Model?

Procedures

The procedures of the study were to survey the literature and existing research related to the Hunter Instructional Model along with a description of the major elements of the Hunter Model. A chronological review of the research concerning self-efficacy was completed.

A list of school districts which offered training in the Hunter Instructional Model for the 1987-88 school year was obtained with assistance from the University of Idaho and Idaho State University. Several Idaho school districts offered the training, with ten of the districts participating in the study. Teachers enrolled in the participating districts served as the population for the study (see Appendix A).

A telephone call, followed by an introductory letter, was directed to each district trainer (see Appendix F). In addition to explaining the project, the letter detailed the research topic and solicited each trainer's assistance.

During a followup telephone call, any questions of the trainer were answered and details of training such as timing, length, procedures, and individual qualifications of the trainer were requested. In all but one district, the contact person was also the trainer. In all cases, the trainers had been either trained by Madeline Hunter or another qualified trainer of the program.

A specified number of instruments, based on the number of participants enrolled in each class, was sent to the trainers to be administered during the first class session and served as the pre-test for the study. After the instruments were administered by the trainer, they were returned to the writer.

Each instrument included a cover page with a note of explanation to the participant and four demographic questions in addition to a request for an identification number. The two-page, thirty-question Teacher Efficacy Scale was attached to the cover letter (see Appendix A).

The followup instrument that served as the post-test was similar to the pre-test with the exception that a revised form was used which presented the questions in a

different order (see Appendix B). Negatively stated items were reverse scored.

The Teacher Efficacy Scale was given to determine each participant's teacher efficacy score, which served as the major data for the study. The Teacher Efficacy Scale is a thirty-item, Likert-format instrument developed and validated by Dr. Sherri Gibson (1983) at the University of Southern California. The instrument was created as part of a study to develop a measure of teacher efficacy which, as noted earlier, had been identified as a variable for individual differences in teaching effectiveness (Ashton and Webb, 1982). The study also examined the relationship between teacher efficacy and observable teacher behaviors (Gibson and Dembo, 1984).

Factor analysis of response from teachers to the thirty-item Teacher Efficacy Scale yielded two substantial factors that corresponded to Albert Bandura's (1977) two-factor theoretical model of self-efficacy. A multitrait-multimethod analysis that supported both convergent and discriminate validity analyzed data from teachers on three traits (teacher efficacy, verbal ability, and flexibility) across two methods of measurement (Gibson and Dembo, 1984). Although the scale contains thirty items, sixteen items were considered for analysis based on acceptable reliability coefficients.

The scale represents scores in two dimensions: (1) the Teachers' Sense of Personal Efficacy, which refers to "the teachers' assessment of their own teaching competence," and (2) Teachers' Sense of Teaching Efficacy, which refers to "the teachers' expectations that teaching can influence student learning" (Ashton and Webb, 1986, p. 4), and an Overall Sense of Teacher Efficacy scores. Analysis of internal consistency reliabilities of the measures yielded Cronbach's alpha coefficients of .78 for the personal teaching factor, .75 for the teaching efficacy factor, and .79 for the total teacher efficacy score for the total sixteen items (Gibson and Dembo, 1984).

The information and data were analyzed using a one-way analysis of variance to determine if there was a difference in teachers' Overall Efficacy, Personal Efficacy and Teaching Efficacy after instruction in the Hunter Instructional Model. A series of two-way analysis of variance measures were used to determine if there was interaction in Overall Efficacy, Teaching Efficacy and Personal Efficacy based on gender, level of teaching, experience, and the ability level of students being taught after instruction in the Hunter Instructional Model. Finally, a t-test was computed between the pre-test and post-test change scores to determine if there was a significant difference. A two-tailed test was conducted at the .05 level of significance.

Participating teachers were identified only by the last four digits of their social security number, or another identification number, to allow for the matching of pre-test and post-test scores, which was a major part of the study. All participants' testing instruments included a section in which the necessary demographic data were furnished, including social security number, gender, years of experience, level of teaching, and ability level of students being taught.

Limitations and Delimitations of the Study

- (1) The study was limited to the 1987-88 academic year.
- (2) The study considered only teachers participating in schools from the state of Idaho.
- (3) The study was limited to the teachers from school districts who had access to training in the Hunter Instructional Model.
- (4) In some cases, participation in the training was due to a condition of employment in the teachers' school districts, while some of the participants in the training volunteered to take the training.
- (5) The study was limited to the areas of self-efficacy that deal with Teacher Sense of Efficacy as it relates to education.

Definition of Terms

- (1) Teachers' Sense of Overall Efficacy: The situation-specific expectation of teachers that they can help students learn and that students are capable of learning what they teach (Ashton and Webb, 1986), as measured by the Teacher Efficacy Scale.
- (2) Sense of Teaching Efficacy: A dimension of Teachers' Sense of Overall Efficacy which refers to teachers' expectations that teaching can influence student learning (Ashton and Webb, 1986), as measured by the Teacher Efficacy Scale.
- (3) Sense of Personal Efficacy: A dimension of Teachers' Sense of Overall Efficacy which refers to the individual teacher's assessment of his/her own teaching competence (Ashton and Webb, 1986), as measured by the Teacher Efficacy Scale.
- (4) Self-Efficacy: A cognitive social learning theory of behavioral change that regulates behavior and develops as an individual acquires a conviction of personal competence necessary to achieve a desired outcome, determines how much effort will be expended, and determines how long it will be sustained in the face of obstacles and adverse experiences (Bandura, 1977).
- (5) Teaching: A constant stream of professional decisions made before, during, and after interaction with the

student; decisions which, when implemented, increase the probability of learning (Hunter, 1982).

- (6) Model of Teaching: Guidelines for designing educational activities and environments that specify ways of teaching and learning -- the patterns for teaching strategies (Joyce, 1983).
- (7) Hunter Instructional Model: The practices and teaching strategies associated with Dr. Madeline Hunter, emphasizing three critical teaching decisions: (a) content to be learned, or what content to teach; (b) learner behavior, or what the student will do to learn and to demonstrate learning has occurred; and (c) teacher behavior, or what the teacher does to facilitate the process of learning based on identified principles of learning (Hunter, 1976).

CHAPTER 2

REVIEW OF THE LITERATURE

For the purposes of this study, the related literature will be presented under the following main topics. These topics will include: (1) The Development of the Hunter Instructional Model, (2) What Is the Hunter Instructional Model--A Description of the Model, (3) Related Research Studies and Programs Using the Hunter Model, (4) Criticisms of the Model and Hunter's Responses, (5) Reasons for Success of the Hunter Instructional Model, (6) Chronological Development of Teachers' Sense of Efficacy, and (7) Research Related to Teachers' Sense of Efficacy.

The Development of the Hunter
Instructional Model

Madeline Hunter has been noted as one of the major influences on teachers during the last ten years (Brandt, 1985), whose ideas have "spread like wildfire" since her elements of an effective lesson were introduced in the late 1960's (Slavin, 1987, p. 56). She was the principal of the lab school at the University of California at Los Angeles for many years and is currently a faculty member of the UCLA Graduate School of Education (Slavin, 1987). She is

an international consultant and has written several books and made an extensive series of video tapes. She has published articles extensively in many educational journals, periodicals, and magazines, writing about her "theory-into-practice" ideas that have come to be known as the Hunter Instructional Model.

The Hunter Instructional Model was developed over a number of years at the UCLA lab school. With the help of her colleagues, behaviors and characteristics of hundreds of teachers were observed, and exemplary characteristics were isolated and identified (Farrell, 1982; Wallace, 1982).

Hunter credits the basis of her model to theorists such as Benjamin Bloom, whom she lists as one of the most influential contributors to American education (Hunter, 1985b). Hunter claims to have taken what the research has validated about teaching and translated it into "something teachers can use tomorrow morning as they make educational decisions" (Brandt, 1985, p. 61).

Hunter's Instructional Model is referred to in the literature by several names, including: "A Clinical Theory of Instruction," "ITIP," "Mastery Teaching," "PET," "Clinical Teaching," "Target Teaching," "The UCLA Model," and "The Hunter Model" (Hunter, 1985b; Evans, 1982), as well as "Essential Elements of Instruction" (Mannatt and Stow, 1986). There is also a followup component dealing with

supervision. For the purposes of this discussion, it is referred to as the Hunter Instructional Model and focus is primarily on the teaching-learning process.

The Process of Teaching in the Hunter Instructional Model

In the literature concerning the Hunter Instructional Model, Hunter discusses the process of teaching in two ways: the science and the art of the process of teaching. Based on two decades of studying effective classroom teachers, Hunter explains the debate of whether teaching is an art or true science by calling the "science" of teaching the "professional [teacher] decisions and the [student] behaviors that result from those decisions." The "art" of teaching, she refers to as the "non-tangible, intuitive, extrasensory perceptions, which still reside in the category of the unarticulated 'artistry' of teaching" (Hunter, 1976, p. 162).

Hunter defines the act of "teaching" as:

. . . a constant stream of professional decisions made before, during, and after interaction with the student; decisions which, when implemented, increase the probability of learning (Hunter, 1982, p. 3).

As the foundation of the theory of the model, Hunter believes that teachers are not necessarily born, but through a systematic, planned series of developed competencies, can be made (Hunter, 1976). According to Hunter,

Successful teaching is not based on what the teacher was, but depend[s] on what the teacher [does] in planning and implementing . . . the plans in the teaching-learning process (Hunter, 1976, p. 163).

What Is the Hunter Instructional Model--
A Description of the Model

The basis of the Hunter Model lies in the teaching process itself, and the decisions that a teacher uses, regardless of who or what is being taught (Hunter, 1982). In her research, after identifying hundreds of the critical elements used by successful teachers, three major categories of teacher decisions were identified: (1) content to be learned, or what content to teach next; (2) learner behavior, or what the student will do to learn and to demonstrate learning has occurred; and (3) teacher behavior, or what the teacher does to facilitate the process of learning (Hunter, 1976). This, therefore, is Hunter's contention; if these professional decisions are made correctly in the framework of the students, and to the specific situation, "learning will be increased" (Hunter, 1982, p. 3). To elaborate, Hunter states,

If what the teacher does is consonant with what is now known about cause-effect relationship in learning, and if that teacher's decisions and actions reflect awareness of the current state of the learner and the present environment, their learning will predictably increase in the desired direction (Hunter, 1979, p. 1).

Hunter's goal is to produce teachers who can make correct teaching decisions, either before or during instruction, based on research principles and based on deliberate artistic practice (Hunter, 1985b; Hunter, 1987).

In the sections to follow, each of the three critical teaching decisions according to the Hunter Instructional Model will be detailed.

The Critical Elements of Teacher Decisions

Content to be learned. The first critical teaching decision outlined in the Hunter Instructional Model is the "what" or content of teaching, or the intended learning to which teacher-learner attention is being directed (Hunter, 1982). Elements considered under this heading entail many facets of "essential sub-learnings" (Hunter, 1982), including knowledge of prior student learning, prerequisite learning, use of time, etc. (Hunter, 1979) (see Figure 1).

In addition, the criteria of an instructional objective such as the audience, the desired behavior of the students, specific circumstances of instruction, and the criteria for completion should all be considered (Hunter, 1982).

The training model emphasizes the need for the teacher to be able to correct by diagnosing the level of difficulty of the lesson, to be certain that the content is appropriate to the learner. Bloom's Taxonomy is stressed to

Figure 1. The Hunter Model.

THREE CRITICAL TEACHER DECISIONS

Teaching is a constant stream of making and implementing decisions, before, during and after instruction which, when implemented, will increase the probability of learning.

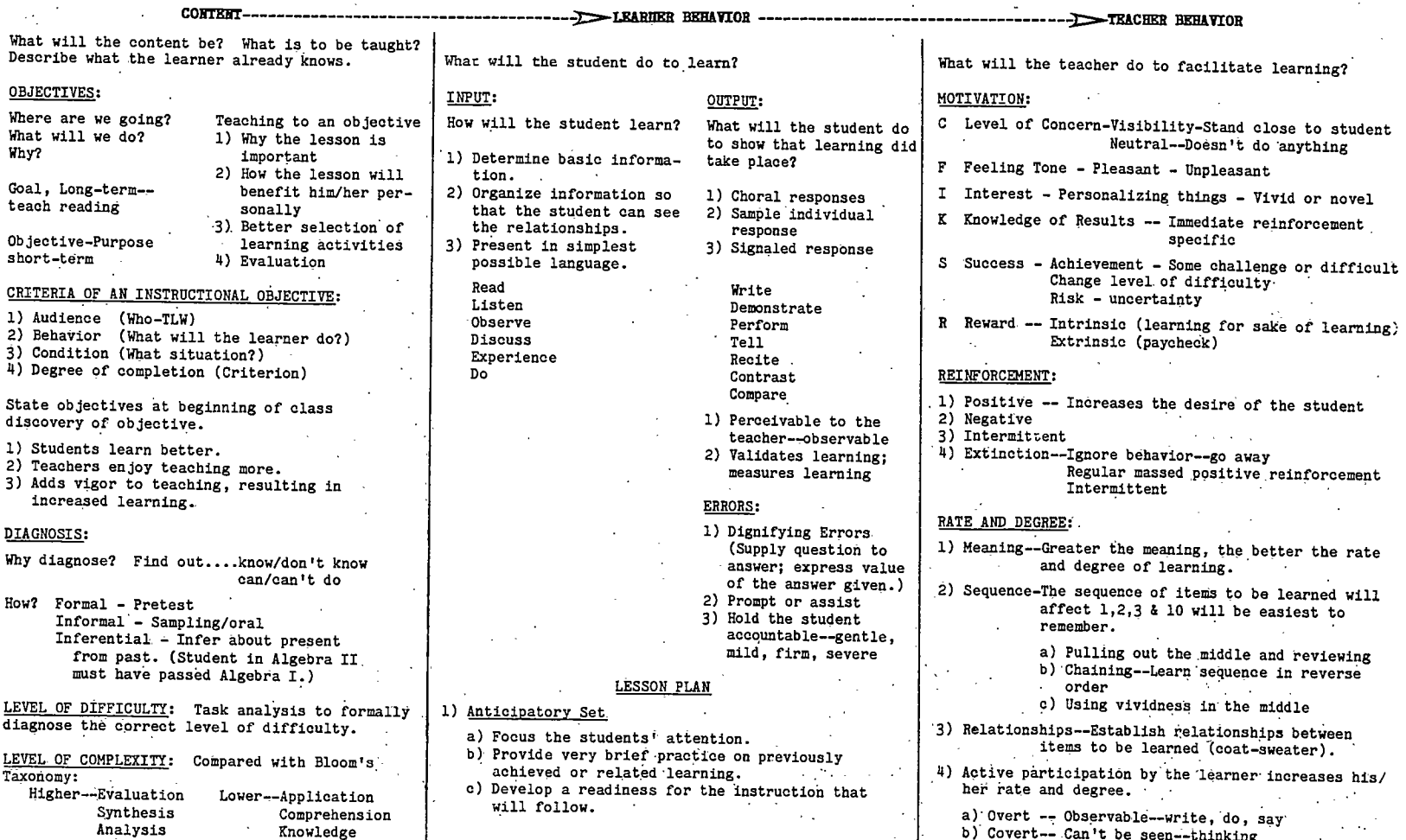


Figure 1--continued.



TASK ANALYSIS:

- 1) Select objective task.
- 2) Break down tasks into sub-tasks.
- 3) Sequence the sub-parts.
- 4) Determine what the student can or can't do.

THINGS TO DO TO AVOID WASTING TIME:

- 1) Sponge activities.
- 2) Beam questions to entire group (while passing out paper).
- 3) Give assignment or quiz.
- 4) Utilize prime time wisely.

TIME:

- 1) Quantity of time--function of administration
- 2) Quality of time--function of teacher

PRINCIPLES OF CHALKBOARD/OVERHEAD PROJECTOR USE:

- 1) Say it before you write it.
- 2) Use only key words and simple diagrams.
- 3) Positional - Relationships.
- 4) Erase before introducing new material.

BRAIN--TWO HEMISPHERES:

Left: Thinks in words | Right: Thinks in pictures

- | | |
|---------------|--------------|
| • Reading | • Art |
| • Writing | • Media |
| • Calculating | • Meditation |

Modal Descriptors

- Linear
- Sequential
- Verbal
- Analytical
- Rational
- Propositional
- Explicit
- Logical

Modal Descriptors

- Intuitive
- Simultaneous
- Holistic
- Visual Spatial
- Synthetic
- Metamorphic
- Appositional
- Tacit

Three ways to provide an anticipatory set:

- a) Ask questions
- b) Quick quiz
- c) Provocative or controversial statement (interest grabber)

2) State Objectives

Why relevant to student?
State the purpose of the lesson.

3) Input

Providing basic information (films, books, lecturers)

- a) Determine basic information.
- b) Organize information so that the student can see the relationships.
- c) Present in simplest possible language.

4) Model

Example--Illustration--Outline

- a) Highlight the critical attributes--description.
- b) Avoid distractions or controversial issues.
- c) Teacher presents the first model to avoid the risk of an incorrect model.
- d) Introduce non-examples:

Makes material relevant and meaningful--
Past ---> Present

Why Model?

- a) Reaching into the past and using models the student is familiar with.
- b) Introduce new materials building on the past.

5) Check for Understanding

- a) Choral response (All respond in unison; must be on task; avoid embarrassment.)
- b) Signaling
- c) Ask questions (sampling/dip-sticking)
- d) Quick quiz

6) Guided Practice--Monitored work; Individual/Group

- 5) Practice--Small amount with meaning; many short better than long; mass at first; quality is the key.

- a) How much material? -- Short, meaningful chunks
- b) How long? -- Intense short periods with intent to learn
- c) How often? -- New learning -- mass practice Many, close together
- d) How well? -- Thorough at first; briefly after learning

RETENTION:

- 1) Meaning -- Reason to learn
Past learning to give meaning to present
- 2) Feeling Tone -- Neutral feeling tone doesn't aid remembering
Pleasant - Unpleasant
- 3) Degree of Original Learning -- Short, meaningful
- 4) Practice Schedule -- Mass practicing
Distributed practice
- 5) Transfer -- Old learning can aid or block learning

TRANSFER:

- 1) Similarity -- of the elements
- 2) Association -- of time
- 3) Degree of original learning
- 4) Critical attributes

teachers, encouraging consideration of all content, based on specific levels of complexity. Hunter notes the need for teacher planning of the content of the lesson and consideration of correct level based on the needs of the students (Hunter, 1982).

Other "decisions" and techniques are suggested in the model such as ideas for use of classroom time on task, use of the chalkboard or overhead, and considerations of learner "learning style" and hemisphericity.

The learner behavior. What the learner will do, or the student behavior that makes learning possible, is the second critical decision (Hunter, 1982). The model focuses on two aspects of the student's learning behavior. The first aspect is the input, or how the student acquires the knowledge or skill, such as read, observe, discuss, etc. (see Figure 1). The other aspect is based on what Hunter calls the output, "which validates acquisition of the knowledge or skill," is perceivable, and "validates" that the student has learned the objective (Hunter, 1982, p. 5).

The Hunter Model distinguishes three important generalizations:

- (1) Teaching and learning is focused on the intended objective since the attaining of this objective is the purpose of the instruction.

- (2) As with content, the learning objective is at the appropriate level of difficulty, including the levels suggested in Bloom's Taxonomy.
- (3) Monitoring and adjusting is occurring, or the constant monitoring to adjust learning to make sure that the new learning being considered challenges and is being learned by the student. Hunter refers to this as "dipsticking" (Hunter, 1976, p. 165), and suggests several methods including choral responses, individual "probing," writing, etc.

Included in the model as a learner behavior, but noted by educators as "doing Madeline Hunter" (Slavin, 1987, p. 56), is the specific approach to presenting a lesson, or the seven steps of a teaching episode.

According to Hunter (1987), all seven steps are not necessary in every lesson, but it is a "decision" of the teacher to decide which steps are appropriate. The steps in the model include:

- (1) Anticipatory Set: By asking questions, "interest grabbers," etc., the learner's attention is focused on the lesson.
- (2) Statement of Objectives: The purpose of the lesson and relevance to the student are explained.
- (3) Provide Input by the Teacher: At this step, the teacher provides the basic information and explains relationships in a variety of methods and techniques.

- (4) Modeling the New Learning: By highlighting the "critical attributes" and demonstrating, learning will be enhanced.
- (5) Checking for Understanding: The teacher determines the level of understanding by a variety of methods.
- (6) Guided Practice: The teacher monitors the learner's work and is available to provide assistance.
- (7) Independent Practice: With the assumption that the students understand the lesson, extra practice is assigned.

Teacher behavior. The third critical decision is the behavior of the teacher, or what the teacher does to facilitate learning. Hunter indicates a teacher, like everyone else, can only control one person in the student-teacher relationship -- him/herself (Hunter, 1985b). For this reason, she notes, the "deliberate and conscious" use of the established research-based principles of learning by the teacher will guide student response and "increase the likelihood" of accelerated student achievement, increase the motivation of students to learn, increase the speed and amount (rate and degree) of learning, and promote retention and appropriate transfer of that learning to new situations (Hunter, 1982, p. 6).

Hunter believes it is unnecessary to argue about methodology of learning, but rather, given the content, learner task, and teaching the principles of learning,

achievement will be facilitated at each particular time for each particular learner (Hunter, 1976). Knowing these principles of learning, in her view, and "deliberately and artistically using them, is a hallmark of the master teacher" (Hunter, 1982, p. 6).

Principles of learning. These are the major principles of teacher behavior as described above, and are discussed as follows:

(1) Motivation: This is the student's "intent" to learn and is very important to the overall success of student learning (Hunter, 1967a, p. 37). According to Hunter, "motivation is not generic, but it is learned." Teachers need to become knowledgeable about it and skilled in increasing the students' motivation to learn (Hunter, 1982, p. 11). Although many factors are beyond the teacher's control, there are six factors that the Hunter Instructional Model outlines as possible ways to "interact" and assist in student motivation:

(a) Level of concern: Finding an optimal point in the student's caring to learn is the objective. Either too high a level or too low will produce little or no learning, but a moderate level "stimulates effort to learn." Examples of techniques are physical proximity to a student not participating, surprise testing, etc. The model

encourages deliberate and conscious adjusting of this level to gain motivation (Hunter, 1982).

- (b) Feeling tone: Since the way a student feels in a classroom affects motivation, students will put forth more effort in a pleasant learning situation and if they feel successful, produce a pleasant feeling. However, an unpleasant feeling tone may be required to increase achievement. It is the knowledge of the creation of the desired feeling tone that will produce the necessary student motivation (Hunter, 1982).
- (c) Interest: Creating interest in learning by relating learning to the student's life or accentuating the novel or vivid are ways of creating interest and motivation (Hunter, 1982).
- (d) Knowledge of results: Motivation will likely increase if specific knowledge of results is known. According to Hunter, we find out what we are doing well, what needs to be improved, and what to do to improve it; then there is reasonable probability that we can improve it (Hunter, 1982).
- (e) Success: Teachers can help students feel successful by making a careful diagnosis of the student's ability. In order for a student to feel success there must be some effort in the

task to give a feeling of accomplishment. Lack of success or success affects motivation and is a major concern for instruction (Hunter, 1982).

- (f) Relation of activity to reward: When the activity itself is rewarding, it produces a situation where the motivation is intrinsic, the activity will always achieve the goal, and motivation will compound. Extrinsic motivation is dependent on and changes with the specific environmental situation (Hunter, 1967a).

The six factors of motivation as described above are not presented as discrete items, but rather a combination of one or all of them promotes, according to Hunter, a motivation to learn (Hunter, 1982). If all students attained intrinsic motivation or self-motivation, a teacher's job would be easier, but, as Hunter indicates, because this is usually not the case, a teacher using the principles of motivation can stimulate learning (Hunter, 1982).

Hunter concludes,

If you are the learner and are putting forth effort and are somewhat concerned about the outcome, yet you experienced (1) the pleasant feeling tone of being (2) successful and you found the material (3) interesting, novel, and related to your own life, then if a teacher gave you (4) immediate and specific knowledge of results about what you had accomplished and helped you to continue to improve your performance, there is a high probability that you enjoyed the whole

process. You're motivated to 'do it some more' because you enjoyed it (pp. 22-23).

Farrell (1982), in his article "Motivation and Learning" concerning the Hunter Model, concluded that

If these [principles of learning] are present, learning will be successfully enhanced and reinforced; if they are missing, learning will at best be inhibited or at worst nonexistent (p. 8).

- (2) Reinforcement: This is another principle of learning that applies the ideas of Skinner in the classroom. Hunter (1967a) outlines the four major concepts of reinforcement, which she says "should be of value to everyone engaged in the process of learning which is essentially the process of changing behavior" (p. 1).
- (a) Positive reinforcement: A positive reinforcer will strengthen the response it follows and make it more likely to reoccur. It means strengthening of the behavior that brought on the positive reinforcer.
- (b) Negative reinforcement: A negative reinforcer can be anything, according to Hunter, unpleasant or not desired by the student that weakens the behavior it immediately follows.
- (c) Intermittent reinforcement: Intermittent reinforcement distinguishes timing of the reinforcement, meaning more at first and then a gradual decline.

- (d) Extinction: Extinction will happen if there is no positive or negative reinforcement causing the behavior to stop.
- (3) Rate and Degree: This is the principle of learning in which several areas are explored including meaning; the greater the meaning to the learner, the better rate and degree of learning. Hunter describes sequence as the order in which items are learned, affecting the speed in which learning takes place. Suggestion of relationships by the teacher building associations between two or more items enhances the rate and degree of learning. Finally, practice in a specific and systematic way increases the rate and degree of learning (Hunter, 1969), with small amounts with meaning at first when the learning process is occurring. Hunter maintains the quality of learning is the most important concern.
- (4) Retention: This is the principle of learning that, according to Hunter, is the way a teacher can help students remember as a teacher searches "for methods that are more productive of learning and ways that result more surely in retention of that which has been learned" (Hunter, 1967b, p. 1).
- (a) Meaning: Relating the lesson to the learner's own life and experience provides meaning and aids remembering.

- (b) Feeling tone: When the teacher tries to make the learning as pleasant as possible, Hunter contends that the pleasant feelings will promote learning. Unpleasant feelings also promote learning, but this could be non-productive. Finally, a neutral feeling tone is "useless" as far as memory is concerned, as it does not invoke any feelings.
 - (c) Positive transfer: Retention can be gained by the students through the teaching of the new information and by pointing out the similarities of old learning. Whenever the transfer of old learning to new learning takes place, it assists the new learning.
 - (d) Negative transfer: Retention, according to Hunter, is impeded whenever the memory of one learning interferes with another and the teacher stresses difference.
 - (e) Practice schedule: Hunter notes that teachers must decide "how much," "how many times," and "how often" the learners should practice the lesson to "maintain adequate meaning" (p. 35). She suggests "mass practice" with short intervals at first, and later, distributed practice to maintain the information.
- (5) Transfer of Learning: This is the fifth principle of learning and is referred to by Hunter (1971) as a

. . . source of real economy of time and energy because, as previous learning facilitates or interferes with new learning, such transfer of learning can effectively decrease or seriously increase the time needed to achieve a new learning (p. 2).

Hunter notes four generalizations that will help teachers teach transfer of learning:

- (a) Transfer is important because it is the heart and core of problem-solving, creative thinking, and all other higher mental processes, as well as inventions and artistic products. It provides a source of real economy in time and energy in learning.
- (b) The four categories of factors which encourage transfer are: (1) similarity of environment, actions, and feelings; (2) association of two learnings; (3) adequate degree of the original learning; and (4) identification and labeling of the critical and invariant properties or generalizations that make a situation what it is.
- (c) Verbalizing the critical element which triggers transfer is desirable because the act of making explicit and labeling: (1) focuses the learner on the critical element rather than an unimportant one, and (2) increases the conscious recognition of that element in a new situation.

- (d) The most important factor promoting transfer (not because it is more powerful, but because it is more subject to instructional control) is the identification of those critical and unvarying elements, attributes, and generalizations which signal that something is what it is, so positive transfer will take place and inappropriate transfer will not occur. To achieve this skill, we should teach: (1) categorization, (2) identification of critical attributes, (3) predifferentiation skills, and (4) generalizations.

What has been presented here is a brief discussion of the major components of the content of the Hunter Instructional Model. The formal training consists of thirty hours of training, usually over an extended period of time.

Related Research Studies and Programs
Using the Hunter Model

Madeline Hunter notes that a model should not be considered the final answer, but should contribute to

. . . educators' use of research-based knowledge
. . . to encourage the constant addition of
research-based propositions, . . . [and] increase
teacher and student success and satisfaction in
schooling (Hunter, 1985b, p. 601).

The major principles of the Hunter Instructional Model are research-based, borrowed from major theories and concepts,

such as Bloom's Taxonomy, Rosenshine (direct instruction), and Skinner (motivation), among others.

The three critical decisions described in the Hunter Instructional Model are consistent with the Greenwood and Good (1974) discussion of the "teacher as decision maker."

The authors wrote:

- (1) Decision making is a critical aspect of the teacher's job.
- (2) The teacher typically makes decisions on the basis of his personal belief system, which we prefer to call his theory.
- (3) Education courses should help the teacher examine and state his theory and give him the opportunity to integrate it with many scientific educational theories.
- (4) The teacher [should] develop his decision making skills by giving him the opportunity to make decisions (p. 2).

The Hunter Instructional Model also seems to be compatible with the effective school's research in several other areas. As Cohen (1981) states,

A necessary pre-condition for the implementation and success of the five factors [noted in the effective school research] is a large proportion of well-motivated students (p. 29).

This is consistent with the Hunter Model addressing motivation directly (Hunter, 1982).

Two major studies have been completed using the Hunter Instructional Model. "Project Linkage," the first major validation study, was sponsored by a California State Department of Education grant to the UCLA Graduate School of Education. The grant was to test the Hunter

Instructional Model in a Los Angeles inner-city school where test scores are "at the bottom sixth percentile of the nation" (Hunter, 1987, p. 51).

The project was evaluated by the federally-funded Center for the Study of Evaluation at UCLA, and "showed students doubled, and in some cases quadrupled their previous gains" (Hunter, 1987, p. 5).

Other gains listed in the study included a reduction of vandalism and discipline problems and an increase in the self-concepts of the students (as measured by available instruments) (Hunter, 1987; Hunter, 1985b).

Several research studies have been conducted concerning the Hunter Instructional Model, with the most recent and notable known as the "Napa/Vacaville Project" at the Napa County Unified School District in California. The evaluation was designed by Jane Stallings and George Mohlman in 1981 (Stallings, 1985; Stallings, 1987) to measure "the impact of Hunter's Instructional Theory-Into-Practice training on teacher behavior, student engaged rates, and student achievement in reading and mathematics" (Robbins and Wolfe, 1987, p. 59).

The National Institute of Education conceptualized the project with two goals:

- (1) To find out if comprehensive staff development might lead to higher student engaged rates and higher student achievement, and
- (2) To ascertain whether comprehensive staff development programs would have more impact

on student achievement than would Title I services (Stallings, 1987, p. 63).

The analysis of the evaluation project yielded the following results:

- (1) Teacher behavior: There were significant positive changes in the teachers' appropriate use of instructional skills to the end of the third year, but the scores dropped during the final year.
- (2) Student engaged rate: There was significant improvement in each of the first three years until year four.
- (3) Student achievement: Students gained in reading and math until the fourth year when the achievement scores dropped (Robbins and Wolfe, 1987, p. 60).

Notable in these results was that out of the original 520 students enrolled in 1982, only 102 remained after the fourth year (Stallings, 1987). Further, students in the project from its inception in 1982 achieved higher scores in reading and mathematics during the last year than students entering for the first time that year.

In addition to the major studies detailed above, there have been several dissertations done on parts of the model, in addition to Rosenshine's work which

. . . supports the model as an effort to synthesize all of these research 'bits and pieces' into a cognitive decision-making model of teaching rather than having them remain as isolated and disjointed fragments (Hunter, 1987, p. 51).

Other instances of implementation of the model in school districts and projects across the country are referred to in the research, including eastern Washington

state (Lundsgaard, 1982) and in Pittsburgh (Wallace, 1982), both utilizing the model for instructional improvement and supervision with positive results. In Washington the project, called "Child Service Demonstration Center," included several rural districts, while the Pittsburgh project, called the "Pittsburgh Research Based Instructional Supervisory Model," was instituted in an urban area.

Both projects chose the Hunter Model for similar reasons: (1) significant student gains, (2) clearly outlined steps in diagnostic-prescriptive teaching, and (3) a supervision component as well as a training component.

In Cedar Rapids, Iowa (Jacobson, 1984) a school's improvement project using the Hunter Model produced positive results in enhancing teacher skills as well as those of principals.

A significant study to improve teaching practices, in which the Hunter Instruction Model was one of ten "research-based staff development practices," was called the School Improvement Model by Richard Manatt and Shirley Stow and was concluded at Iowa State University in 1986 (Manatt and Stow, 1986, p. 118).

Of the ten original interventions, the Hunter Model (which the study called "Essential Elements of Instruction") was selected along with the Teacher Expectation and Student Achievement (TESA) program to be used as intervention strategies in the five city school districts.

Results of the study indicated that the participating teachers' average increase in post-test scores from pre-test scores as measured by a knowledge in teaching criteria measure was 50.35 percent to 68.93 percent correct, for a total average gain of 18.58 percent correct.

Criticisms of the Model and Hunter's Responses

Several educators have criticized the Hunter Instructional Model in the past few years. Most recently, in Education Leadership, Richard Gibboney (1987a) concluded:

- (1) The content of the model consists primarily of techniques unrelated to a coherent body of educational theory.
- (2) The training process didactically presents techniques that are unrelated to ideas and uninformed by reading or discussion.
- (3) Teachers are implicitly viewed as technical decision makers, not professional decision makers.
- (4) The model accepts the educational status quo, in part, because it excises teaching from its essential context, and it offers an incomplete and atomistic rather than a more complete and holistic account of learning and teaching.
- (5) Because the model is non-intellectual and mechanistic, it is not a fundamental response to the problem of quality of education (p. 50).

Additionally, Gibboney (1987b) also criticized the research base for the Hunter Instructional Model by noting that the final report of the Napa study indicated a drop in

reading scores (in the final year) and showed no difference from the control school.

In response to Gibboney, Hunter (1987) replied to the criticism concerning the model being non-intellectual by noting:

Gibboney's complaint that the model is non-intellectual is a perplexing twist. The model is more typically criticized for expecting thinking at an impossibly high level, asking teachers to understand psychological propositions; translate them into high speed, artistic performance (procedural knowledge), and constantly monitor teaching decisions by conditional knowledge (asking 'when?' is each proposition appropriate and 'why then?' Could any requirements of a professional be more intellectually demanding (p. 52)?

Hunter continued by dismissing the statement that her model is mechanistic in noting that the seven elements teachers should think about do not constitute the Hunter Model for supervision (Hunter, 1987).

Hunter stated:

I deplore the fact that many observers are looking for the presence or absence of certain elements rather than the appropriateness and artistry of implementation of the decisions a teacher makes (p. 52).

Hunter (1987) continued by noting administrators using a "checklist mentality . . . present an indictment of the administrators' preparation" (p. 52).

Hunter defended her model's research base, citing the Project Linkage evaluation and the Napa Project. Finally, she addresses the issue of transfer of learning which

Hunter (1987) calls the "ultimate goal in learning" and recently has synthesized "into a reasonably practical model to increase the probability of transfer" (p. 53).

Others, such as Robert Slavin (1987) in "The Hunterization of America's Schools," also criticized the research basis of the Hunter Instructional Model, pointing to the Napa Project in which the control school gained comparably to the Hunter Model school.

Hunter replied that the Napa research suggests the model was effective, but not maintained. She added, "The research fails to report that many teachers in the control schools had prior training in the model -- from the same trainers" (Slavin, 1987, p. 60).

Slavin (1987) continued by referring to the Hunter Model as "traditional teaching" (p. 57). In reply, Hunter asked:

Has it been the tradition for teachers to consciously and deliberately base their decisions on knowledge? . . . Most good teachers 'got the hang of it' through trial and error, not by practicing research-based teaching (Slavin, 1987, p. 60).

Both Slavin and Hunter lament what Slavin warned as "large-scale, mandated implementation of stripped-down, formula-like application of [Hunter] principles" (Slavin, 1987, p. 57). Hunter agreed by noting:

It's an indictment of graduate university programs that professionals offer a checklist instead of adequate supervisory education. Supervisors should be looking for appropriateness and

artistry in teachers' decisions; not for the presence or absence of a certain behavior (Slavin, 1987, p. 60).

Leonard Davidman (1984) criticized the Hunter Instructional Model for its lack of validation. He noted:

The Hunter Model has been partially, but not widely or systematically validated, and is therefore, quite worthy of more rigorously defined, longitudinal, comparative inquiries (p. 12).

Davidman (1984) continued:

For the Hunter Model of instruction to qualify as a scientifically and strongly validated model of instruction many more longitudinal replications in diverse school districts are needed (p. 12).

Hunter (1985b) wrote an article entitled "What's Wrong with Madeline Hunter?" (or, as she noted, "What's wrong with the model?") in which she dispelled the "myths" that had been waged against her model. Included in the "myths" were:

- (1) The model is rigid and stifles creativity: To this, Hunter replied, "This model should provide the launch pad from which creativity can soar" (p. 58).
- (2) The model was created to evaluate teachers: Hunter replied, "It was created to increase teaching excellence. Using the model has changed many marginal teachers into effective ones and effective teachers into masters" (p. 58).
- (3) The model is great for direct teaching, but does not apply to the arts, to discovery learning, or

cooperative learning: Hunter challenged the statement by noting that "the model undergirds the decisions made in every mode of teaching. . . . Any style of teaching or learning may be used, but the teacher remains responsible for learning outcomes" (p. 59).

- (4) The model applies only to elementary teaching: Hunter contended that "the model is equally effective in elementary, secondary, and university teaching" (p. 59).

Hunter (1985b) commented on several "misunderstandings" that lead to abuse of the model, including:

- (1) Administrators believe that teachers should try to use every element of effective instruction: Hunter responded, "Any observer who uses a checklist to make sure a teacher is using all seven elements does not understand the model" (p. 60).
- (2) Promoters of the model want to start with teachers: Instead, Hunter suggested, "Knowledge of effective teaching should first be learned by the administrators and principals to internalize skills" (p. 60).
- (3) Leaders are not adequately trained: This, according to Hunter, "results in a lack of understanding, misunderstanding, and misapplications . . . of a potentially powerful model for increasing success in teaching and learning" (p. 60).

Reasons for Success of the Hunter
Instructional Model

As mentioned earlier, with the criticisms have come wide and enthusiastic acceptance of the model as a "common-sense translation of well-founded instructional theory put into practical terms" (Slavin, 1987, p. 56).

Freer and Dawson (1987) noted three reasons why the model has been so popular with practitioners:

- (1) The model is clear . . . providing the template for thinking about the process of teaching and lesson preparation versus the prescriptive 'do this--say that' of most teacher guides.
- (2) The model can be applied almost immediately . . . [with] many of the principles exemplifying approaches they have used successfully but in a willy-nilly fashion. Training, then, appears to capitalize on a transfer of learning, which aligns old and new practices in more logical and productive ways.
- (3) The model promotes a common vocabulary which practitioners see as immeasurably beneficial whether teaching, supervising, or just plain talking about teaching (p. 68).

Davidman (1984) mentioned several reasons why, in his view, the model has been popular and successful:

- (1) [The model] says loud and clear that teachers can make a difference, [and] can significantly affect learning. . . .
- (2) It is viewed as a flexible, general model which leaves abundant room for teacher decision making, in intelligence and artistry. . . .
- (3) It provides instructional guidelines and skills which teachers value. . . .

- (4) It raises the status of the teaching profession by arguing that progressive teaching, teaching guided by the essential principles of teaching, is a scientifically informed enterprise (p. 9).

Davidman (1984) continued by noting that he believes that because the model gives experienced teachers new labels for kinds of teaching behaviors they already have, it provides positive reinforcement for what they are already doing or agree they should be doing. Although he has no research-based data, he concluded by saying that the model "provides many teachers with a greater sense of intellectual control over their very complex work environment" (p. 10).

Chronological Development of Teachers' Sense of Efficacy

Bandura's Conceptual Construct

What has been recently called "an important factor in school improvement" (Dembo and Gibson, 1986, p. 35) is the theory of Teachers' Sense of Efficacy, based on the research in self-efficacy of Albert Bandura and his associates at Stanford University. "Self-efficacy," according to Bandura (1977), "is a cognitive mechanism that regulates behavior" (p. 191). Schunk (1981) explained that the "theory of self-efficacy postulates that different modes of influence change behavior in part by creating and strengthening self-precepts of efficacy" (p. 93). He continued:

Perceived self-efficacy is concerned with judgments of one's capability to perform given activities. In this view, perceived self-efficacy affects behavioral functioning by influencing people's choices of activities, effort expenditure, and persistence in the face of difficulties. The higher the perceived efficacy, the greater is the sustained involvement in the activities and subsequent achievement (p. 93).

Bandura (1977) explained what Gibson and Dembo (1984) referred to as his two-component model. He said that any positive endeavor is a "means of creating and strengthening expectations of personal efficacy" (p. 193). However, he distinguished efficacy expectations from outcome expectations by noting:

An outcome expectancy is defined as a person's estimate that a given behavior will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcome. Outcome and efficacy expectations are differentiated, because individuals can believe that a particular course of action will produce certain outcomes, but if they entertain serious doubts about whether they can perform the necessary activities such information does not influence their behavior (p. 193).

The concept of self-efficacy can be traced to the work of Lewin and Rotter and it concerns the "judgements of one's capability to produce a given pattern of behavior" (Schunk, 1981, p. 93) or, as noted by Denham and Michael (1981), "a teacher's confidence in his [her] potential effectiveness [which] is thought to be the basis for more effective teaching" (p. 39).

The Application of Self-Efficacy
to Education--The Rand Studies

In two important studies sponsored by the Rand Corporation (Armor et al., 1976; Berman et al., 1977), this concept was applied to teachers and defined as "the extent to which the teacher believed he or she had the capacity to affect student performance" (Ashton and Webb, 1986, p. 137).

Outcome and efficacy expectations were measured in two Likert-scale items which suggested:

- (1) When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment.
- (2) If I really try hard, I can get through to even the most difficult or unmotivated students.

The results of the study (Berman et al., 1977) indicated that Teachers' Sense of Efficacy was "significantly related to students' achievement" (p. 15). This was a breakthrough, according to Ashton and Webb (1986), because the tests suggested that Sense of Teachers' Efficacy was a component of teacher motivation associated with student achievement. In addition, Teachers' Sense of Efficacy was related to teacher and student behaviors that suggest that teachers with a high sense of efficacy are more likely to be attentive to the individual needs of all students and to respond to students in a positive, accepting, supportive

style that encourages student enthusiasm and involvement in decision making.

As noted earlier, as a result of the National Institute of Education study beginning in 1979 and the earlier Rand studies, the two Rand questions were not significantly correlated (Ashton and Webb, 1986), and thus the concept of Teachers' Sense of Efficacy was distinguished by two independent dimensions: (1) Sense of Teaching Efficacy and (2) Sense of Personal Efficacy (see Figure 2).

Teacher's Perception of Own Capabilities

	I am capable of teaching	I am incapable of teaching
Teacher's Perceptions of Student Capabilities	Students are capable of learning Teacher capable Students capable A	Teacher incapable Students capable C
	B Teacher capable Students incapable	D Teacher incapable Students incapable

(Source: Berman et al., 1976, p. 225.)

Figure 2. Teacher Efficacy Perceptions.

The Sense of Teaching Efficacy

The Sense of Teaching Efficacy dimension "refers to teachers' expectations that teaching can influence student learning . . . despite external obstacles such as family background and student ability" (Ashton and Webb, 1986, p. 4).

Teachers high in this dimension would agree with Bloom (1981) that "what any person in the world can learn, almost all persons can learn if provided with appropriate prior and current conditions of learning" (p. 132).

The Sense of Personal Efficacy

The Sense of Personal Efficacy dimension refers to the teachers' perceptions of their own teaching abilities and competence and how it "influences their choice of classroom management and instructional strategies" (Ashton and Webb, 1986, p. 4).

The so-called 'marginal teachers' who doubt their abilities to manage the behaviors of students . . . may allow those students to ignore classroom rules or doubt their abilities to motivate certain students . . . may permit those students to remain off-task during instruction (Ashton and Webb, 1986, p. 4).

Research Related to Teachers' Sense of Efficacy

The 1979 National Institute of Education study is the most comprehensive research on Teachers' Sense of Efficacy

to date and has produced other spin-off studies. The objectives of the research were to clarify the nature of the efficacy construct by investigating:

- (1) factors that facilitate and inhibit development of a sense of efficacy in teachers,
- (2) teacher behaviors that are associated with their sense of efficacy,
- (3) effects of teachers' sense of efficacy on students, other teachers, and other aspects of the school environment, and
- (4) methods of influencing the development of teachers' sense of efficacy (Ashton and Webb, 1986, p. vii).

The results of the study, which extended over three years, yielded a research review in all areas of the educational environment (Ashton and Webb, 1986), looking at the effects on the Teachers' Sense of Efficacy concerning:

- (1) Student characteristics
- (2) teacher characteristics
- (3) Teacher ideology
- (4) Role definitions
- (5) Class size
- (6) Activity structure
- (7) School size and demographic characteristics
- (8) School norms
- (9) Collegial relationships
- (10) Principal-teacher relations
- (11) Decision-making structures
- (12) Home-school relations
- (13) Nature of the school district
- (14) Legislative and judicial mandates
- (15) Conceptions of the learner
- (16) Conceptions of the role of education

In summing up the study, Ashton and Webb (1986) stated:

The results of our research indicate that teachers differ in their efficacy attitudes, and these differences are reflected in teachers' behavior

and students' performance. Our results also demonstrate that efficacy attitudes are elusive and changing (p. viii).

Other significant findings of the study included:

- (1) Teachers with low efficacy scores tended to stratify their classes more by ability and then tended to give more effort, attention, and affection to their high-ability students.
- (2) Low efficacy teachers perceived student behavior, particularly that of their low achieving students, in terms of its potential threat to orderliness.
- (3) High efficacy teachers were not as likely to be angered or to feel threatened by misbehavior of students.
- (4) High efficacy teachers seemed to communicate clearly their expectations about which student behaviors were appropriate, seldom overlooked infractions when they did occur, had routine procedures for enforcing classroom rules, and were more likely to keep their students and themselves on task.
- (5) High efficacy teachers had higher academic standards even for low achieving students, monitored on-task behavior more frequently, built more positive and fewer punitive relations with their students, had more open communications with their students, appeared more supportive of student initiatives, and involved their

students in more decisions (Ashton and Webb, 1986; Berlinger, 1984).

Finally, four areas for further research were noted as "particularly relevant" for research to enhance Teachers' Sense of Efficacy: (1) teacher education programs, (2) beginning teacher socialization practices, (3) school organization, and (4) parent-teacher relations.

Teacher Efficacy Scale--The Gibson Study

Gibson (1983) conducted a study to develop an instrument to measure teacher efficacy and examine the relationship between teacher efficacy and observable teacher behaviors. Besides validating the Teacher Efficacy Scale, the results of the study noted that a teacher's sense of self-efficacy can provide a major determining point for effectiveness in the classroom.

As noted by the results of the study, Gibson and Dembo (1984) indicated that

. . . high sense of efficacy teachers used the classroom time more effectively, criticized their students less, and persisted in 'wait time' more for students needing additional time (p. 569).

In addition, low efficacy teachers were less likely to exhibit the overall sense of withitness (Kounin, 1970).

The Gibson (1983) study involved three distinct phases to contribute to the construction of the Teacher Efficacy Scale. Phase one involved "factor analysis and reliability

estimates of the Teacher Efficacy Scale" (p. 100). Phase two involved fifty-five teachers who were enrolled in graduate education courses to complete two measures of teacher efficacy, two measures of verbal ability, and two measures of flexibility. These six measures were then analyzed using a multitrait-multimethod correlational matrix to evaluate convergent and discriminant validity. Phase three of the study utilized selected teachers based on previous high or low efficacy scores to correlate the efficacy score and observation of classroom interactions such as allocations of time and specific feedback responses.

The results of the study (Gibson, 1983) indicated Personal Efficacy and Teaching Efficacy corresponded to Bandura's two-factor theoretical model of self-efficacy. The construct of Teacher Efficacy, according to the study, "appears to include a Personal Efficacy . . . as well as a dimension of Teaching Efficacy" (p. 101). Internal consistency reliability estimates were established for a total scale as well as the two subscales at .79, .75 and .78, respectively.

Further, the significant correlations in phase two demonstrated both a convergent and discriminant validity. According to Gibson (1985), "These correlations supported the contention that the three constructs are different from each other and that trait variance for Teacher Efficacy

exceeds method variance" (p. 102), a strong support for discriminant validity.

Data in phase three revealed

. . . different trends between high and low efficacy teachers in teacher use of time variables and feedback patterns, while there was no significant difference in the total academic time (use) variable (p. 102).

The conclusions of Gibson's (1983) study included the following:

- (1) Teacher Efficacy is multidimensional, consisting of at least two dimensions (Personal Efficacy and Teaching Efficacy).
- (2) The two dimensions of Teacher Efficacy clearly correspond to Bandura's two-component model of self-efficacy.
- (3) Evidence of construct validity for the Teacher Efficacy construct is presented from several measures.
- (4) Teacher Efficacy appears to serve as an intervening variable which influences specific teacher behaviors which are known to yield significant student outcomes (pp. 103-104).

The Teacher Efficacy Scale has been widely used for other studies according to Gibson. In a conversation with the writer, she noted that several studies have used or were presently using the instrument as a Teachers' Sense of Efficacy measure (Gibson, 1987).

Other Related Research

In their literature review in 1982, Fuller et al. reported that teachers' own efficacy is rarely included in the "voluminous and controversial teacher expectation

literature," but included information concerning how teachers may boost students' efficacy (p. 11). Cooper and Good (1983) included several studies of the effect of teachers on students' efficacy, but other researchers such as Brookover and deCharms "suggest how teachers holding high efficacy may model this perceptual antecedent to achievement within their students" (Fuller et al., 1982, p. 11).

The literature highlights much of the research on teaching in which classroom organization and behavior are the key elements (Brophy and Evertson, 1976) and findings about teacher-student relationships that seem to be consistent regardless of the method of instruction and forms of classroom organization (MacKenzie, 1983).

These models of teaching have played a key role in developing a flexible, theoretical base for the study of teaching (Joyce, 1983; Hunter, 1985b), and can be applied to a variety of classroom situations, "not as a recipe, but as a guide for the decisions of teachers" (Hunter, 1985b, p. 59).

Donald Medley (1982), commenting on the future of the teacher effectiveness research, noted,

The content of a teacher's repertoire of competencies should be conceived of in large part as a matter of strategies or models. The abilities to select models appropriate to objectives, and the ability to implement each model, once it has been selected, would be the principle teaching skills a teacher needs. Teacher training . . . would be

organized around these types of decision-making skills (p. 1900).

A description of the methods and procedures that were used will follow in Chapter 3.

CHAPTER 3

METHODS AND PROCEDURES

The problem of this study was to determine if there was a difference in Teachers' Overall Sense of Efficacy after receiving training in the Hunter Instructional Model.

The study determined if the variables of teachers' gender, level of teaching, experience, and the ability level of the students being taught provided a significant difference in Overall Teachers' Efficacy, Teaching Efficacy and Personal Efficacy after training in the Hunter Instructional Model.

The study also determined if there were significant differences in the two dimensions of Overall Teachers' Sense of Efficacy -- Sense of Teaching Efficacy and Sense of Personal Efficacy -- after instruction in the Hunter Instructional Model (Ashton and Webb, 1986).

The purpose of the study was to determine if a teaching model such as the Hunter Instructional Model, which is designed to enhance individual teachers' skills and effectiveness, also contributed to their attitudes and feelings about how well they can perform their jobs and Overall Sense of Efficacy.

In addition, the study proposed to determine if teacher characteristics such as gender, level of teaching, experience, and ability level of the students in the teacher's class made a difference in their Sense of Efficacy.

This chapter includes a description of the population, the data collection process, the hypotheses, and the statistical procedures applied in the analyses of the data.

Description of the Population

The population for this study consisted of all participants in the training of the Hunter Instructional Model for the 1987-88 school year in nine districts in the State of Idaho. The nine districts represented every population area in the state, including several of the state's largest districts (see Appendix E). Two of the districts had two participating instructional groups. In all cases participation in the study was on a volunteer basis.

Of the 224 total participants who began the course, 207 finished the training and were available to complete the post-test. Several of the original participants dropped the instruction during the interim of the course or did not complete the final post-test. Not all participants answered every question. Thus there was some difference in number of responses on individual questions.

The breakdown of participants revealed that the population consisted of 110 elementary teachers, forty-two middle school or junior high teachers, sixty-four high school teachers, and eight higher education/other. There were seventy-two male teachers and 152 female teachers, with twenty having taught for two years or less, sixty-two for three to eight years, and 142 teachers with nine or more years of teaching experience.

Most of the population (185) worked with regular education students, with eighteen in special education, eleven in remedial or basic education, and ten working with advanced or gifted students.

The population of the study met the requirements of at least thirty cases for each independent variable, based on Cochran's (1963) Formula. The Hunter Model course was designed for a total of thirty hours of instruction, either in a concentrated period of time or over several weeks.

Data Collection Procedures

The following steps were taken to collect the data used in the study:

- (1) A list of school districts in Idaho was obtained from personnel at the University of Idaho in Moscow and Idaho State University in Pocatello.
- (2) Nine districts were involved with the Hunter program, with two districts offering double sessions.

- (3) A total of 224 individuals were administered the pre-instruction instrument, with 207 also completing a post-test. Participants who did not finish the course constituted the difference between the pre-test number and the final usable instrument total.
- (4) Introductory telephone calls were made to district personnel responsible for leading the classes. In all but one district, the responsible person was also the trainer for the course. During this telephone call, a general explanation of the study was given and permission to send an introductory letter was requested.
- (5) A letter was sent to each district detailing the purpose of the study and requesting participation of the district in the study (see Appendix F).
- (6) A followup telephone call was made to each district to answer any questions and to provide details of the district's training such as timing, length of training, procedures, materials, and individual qualifications of the trainers. In all cases, it was noted that the trainers received instruction either directly from Madeline Hunter or from a qualified instructor. In most cases the course was affiliated with a university course and a corresponding number of hours to the semester credits or district in-service credits.
- (7) A specified number of pre-test instruments, determined by class enrollment, were sent to each trainer or

district representative and were given during the first class session. The pre-tests were returned after completion.

All participants enrolled in the course were given the Teacher Efficacy Scale during the first class session to determine pre-instruction Sense of Efficacy. Forms A and B of the Teacher Efficacy Scale (see Appendices B and C) served as the pre-test and post-test for the study and provided the major composition of the data. All of the instructions concerning the administering and administration of the scale were included in each teacher packet. Assurances of confidentiality were included in the preface for the participants.

Because it was necessary to match the pre-tests with the post-tests, the last four numbers of the teacher's social security number or a similar identification number was requested.

Instrumentation

The Teacher Efficacy Scale is a thirty-item, six-point Likert-format instrument developed and validated in 1983 by Dr. Sherri Gibson and Myron Dembo of the University of Southern California. This instrument was chosen because it renders an Overall Sense of Teacher Efficacy score as well as subscores in each of the two dimensions: Teachers' Sense of Personal Efficacy, which refers to "the teachers'

assessment of their own teaching competence," and Teachers' Sense of Teaching Efficacy, which refers to "the teachers' expectations that teaching can influence student learning" (Ashton and Webb, 1986, p. 4).

Analysis of internal consistency reliabilities of the measures indicated Cronbach's alpha coefficients of .78 for the personal teaching factor, .75 for the teaching efficacy factor, and .79 for the total teacher efficacy score. Although the scale contains thirty items, sixteen items were considered for analysis on the basis of acceptable reliability coefficients (see Appendix D). Negatively stated items were reverse scored.

Responses to a list of teacher characteristic variables were asked of each participant as part of the test packet to provide integral information for the study. As suggested by prior research recommendations, areas included were: (1) gender, (2) level of teaching, (3) years of teaching experience, and (4) ability level of students being taught.

During the analysis, the variables were sub-labeled as follows:

- (1) Gender: (a) male; (b) female.
- (2) Level of Teaching: (a) elementary; (b) junior high/middle school; (c) secondary; (d) higher education/other.

- (3) Years of Teaching Experience: (a) 0-2 years; (b) 3-8 years; and (c) 9 years and over.
- (4) Ability Level of Students: (a) special education/learning disabled--mild, moderate, severe; (b) remedial or basic--Chapter I; (c) regular program, and (d) advanced.

Hypotheses

The following hypotheses were tested:

- (1) There is no significant interaction between gender and experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale.
- (2) There is no significant interaction between gender and experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Personal Efficacy subtest of the Teacher Efficacy Scale.
- (3) There is no significant interaction between gender and experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale.
- (4) There is no significant interaction between gender and level of teaching as measured by the change in

pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale.

- (5) There is no significant interaction between gender and level of teaching as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Personal Efficacy subtest of the Teacher Efficacy Scale.
- (6) There is no significant interaction between gender and level of teaching as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale.
- (7) There is no significant interaction between gender and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale.
- (8) There is no significant interaction between gender and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Personal Efficacy subtest of the Teacher efficacy Scale.
- (9) There is no significant interaction between gender and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale.

- (10) There is no significant interaction between level of teaching and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale.
- (11) There is no significant interaction between level of teaching and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Personal Efficacy subtest of the Teacher Efficacy Scale.
- (12) There is no significant interaction between level of teaching and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale.
- (13) There is no significant interaction between level of teaching and experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale.
- (14) There is no significant interaction between level of teaching and experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale.
- (15) There is no significant interaction between level of teaching and experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy

scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale.

- (16) There is no significant interaction between experience and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale.
- (17) There is no significant interaction between experience and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Personal Efficacy subtest of the Teacher Efficacy Scale.
- (18) There is no significant interaction between experience and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale.
- (19) There is no significant difference in the change of Overall Teachers' Sense of Efficacy scores in the participating school districts.
- (20) There is no significant difference in the Personal Efficacy dimension scores of the participating school districts.
- (21) There is no significant difference in the change in Teaching Efficacy dimension scores of the participating school districts.

Statistical Procedures

The computer services provided by Montana State University and the Statistical Programs for the Social Sciences (SPSS) were used to test the hypotheses.

In order to analyze the data in testing Hypotheses 1 through 18, a series of two-way analysis of variance measures were applied. Gender and years of teaching experience were used as the independent variables to test the interaction effect on the dependent variables of change in pre-test and post-test Overall Teachers' Sense of Efficacy scores, Personal Efficacy scores, and Teaching Efficacy scores in Hypotheses 1 through 3.

Gender and level of teaching were used as independent variables to test the interaction effect on the dependent variables of change in pre-test and post-test Overall Teachers' Sense of Efficacy scores, Personal Efficacy scores, and Teaching Efficacy scores in Hypotheses 4 through 6.

Gender and ability level of the students were used as independent variables to test the interaction effect on the dependent variables of change in pre-test and post-test Overall Teachers' Sense of Efficacy scores in Hypotheses 7 through 9.

Interaction effect for Hypotheses 10 through 12 were tested using three two-way analysis of variance measures

with the level of teaching of the participants and the ability level of the students as the independent variables. The dependent variables included the change in pre-test and post-test Overall Teachers' Sense of Efficacy scores, Personal Efficacy change scores, and Teaching Efficacy change scores.

In order to analyze the interaction effect of data in Hypotheses 13 through 15, two-way analysis of variance measures were used with level of teaching and number of years of experience of the participant being used as the independent variables. The change in pre-test and post-test Teachers' Sense of Overall Efficacy scores, change of Personal Efficacy, and change of Teaching Efficacy scores were the dependent variables.

The number of years of experience of the participants and the ability level of students were the independent variables for Hypotheses 16 through 18 to test the interaction effect with the dependent variables of change in pre-test and post-test Overall Teachers' Sense of Efficacy scores, change in Personal Efficacy scores, and change in Teaching Efficacy scores using two-way analysis of variance measures.

Ferguson (1981) stated that studies "may be designed to permit the simultaneous investigation of two experimental variables" (p. 251). In such cases, a two-way analysis of variance is appropriate when interaction

between two or more independent variables with a dependent variable is being tested.

According to Kerlinger (1973), analysis of variance

. . . frees us from working with only one independent variable at a time and gives us a powerful lever for solving . . . problems. It increases the possibilities of making our experiments exact and precise and permits us to test hypotheses that cannot be tested in another way, at least with precision (p. 238).

In order to test Hypotheses 19 through 21, a series of one-way analysis of variance measures were used to determine the difference in the change in Overall Teachers' Sense of Efficacy scores, change in Teaching Efficacy scores, and change in Personal Efficacy scores and the participating school district groups. According to Ferguson (1981), the one-way analysis of variance measure is appropriate to use "to test the significance of the differences between the means of a number of different populations" (p. 234). If differences were found, the Newman-Kuels post hoc procedure was used. When the significant mean differences were present, "a posteriori" or post hoc methods were available to be utilized to focus on multiple comparisons, according to Ferguson.

The Newman-Kuels procedure was used on the basis that "the probability of rejecting the null hypothesis when it is true would not exceed .05 level of significance" (p. 310). The .05 level of statistical significance was chosen as an appropriate level because, as Kerlinger (1973)

noted, it "has persisted with researchers because it is considered . . . neither too high nor too low for most social scientific research . . . and has been widely advocated" (p. 170).

Finally, a t-test was computed between the pre-test and post-test change scores to determine if there was a significant difference. A two-tailed test was conducted at the .05 level of significance.

Analysis of the data will be considered in Chapter 4.

CHAPTER 4

ANALYSIS OF DATA

The results of the data analysis used for the problems of the study are contained in this chapter. The test of each hypothesis is presented.

Problems of the Study

The problems of the study were:

- (1) To determine if there was a significant difference in teachers' Overall Efficacy after instruction in the Hunter Instructional Model.
- (2) To determine if there was a significant difference in the participating teachers' Overall Efficacy based on gender, grade level of teaching, years of teaching experience, and the ability level of the students being taught.
- (3) To determine if there was a significant difference in the teachers' Sense of Personal Efficacy after instruction in the Hunter Instructional Model.
- (4) To determine if there was a significant difference in the teachers' Sense of Teaching Efficacy after instruction in the Hunter Instructional Model.

- (5) To determine if there was a significant difference in the participants' Sense of Teaching Efficacy based on gender, level of teaching, experience, and the ability level of the students being taught.
- (6) To determine if there was a significant difference in the participants' Sense of Personal Efficacy based on gender, level of teaching experience, and the ability level of the students being taught.

A total of twenty-one hypotheses were formulated to provide the data for the problem statements. A one-way analysis of variance was used as a method for testing the significance of Hypotheses 19 through 21, which were intended to answer problem statements one, three and four. Whenever a significance was found, the Newman-Kuels post hoc procedure was applied at the .05 level of significance.

A series of two-way analysis of variance measures were used to test for interaction of Hypotheses 1 through 18. Tables and figures have been used for the purpose of clarification. The results for each hypothesis have been presented and analyzed separately.

Hypotheses

Hypothesis 1:

Hypothesis 1 stated that there was no interaction between the gender of the teachers and the number of years of their experience and the change scores in pre-test and

post-test of the Overall Teacher Efficacy Scale. The data are contained in Tables 1 and 2.

Table 1. Table of means for Overall Teacher Efficacy change scores according to gender and years of teaching experience.

Gender	Years of Teaching Experience		
	0-2 Years	3-8 Years	9 or More Years
Male	9.29	5.80	8.20
Female	11.13	7.42	6.87

Table 2. Analysis of variance of mean Overall Teacher Efficacy change scores according to gender and years of teaching experience.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	132.641	3	44.214	.763	.516
Gender	7.719	1	7.719	.133	.716
Experience	118.601	2	59.301	1.023	.362
2-Way Interactions					
Gender by Exper.	78.086	2	36.543	.631	.534

The results of the two-way analysis of variance test indicated that there was no significant interaction between the Overall Efficacy change scores and the gender and experience of the teacher. Based on these results, Hypothesis 1 was retained.

Hypothesis 2

Hypothesis 2 stated that there was no interaction between teachers' gender and the number of years of teaching experience and the change scores in the Personal Efficacy subtest of the Teacher Efficacy Scale. The data are contained in Tables 3 and 4.

Table 3. Table of means for Personal Efficacy change scores according to gender and years of teaching experience.

Gender	Years of Teaching Experience		
	0-2 Years	3-8 Years	9 or More Years
Male	7.43	6.27	7.24
Female	9.38	6.03	6.63

Table 4. Analysis of variance of mean Personal Efficacy change scores according to gender and years of teaching experience.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	66.542	3	22.181	.933	.426
Gender	3.639	1	3.639	.153	.696
Experience	58.781	2	29.390	1.236	.293
2-Way Interactions					
Gender by Exper.	21.709	2	10.854	.457	.634

The results of the two-way analysis of variance test indicated that there was no interaction between the mean Personal Efficacy change scores and the gender and

experience of the teacher. Based on these results, Hypothesis 2 was retained.

Hypothesis 3

Hypothesis 3 stated that there was no interaction between teachers' gender and experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale. The data are contained in Tables 5 and 6.

Table 5. Table of means for Teaching Efficacy change scores according to gender and years of teaching experience.

Gender	Years of Teaching Experience		
	0-2 Years	3-8 Years	9 or More Years
Male	1.86	-.73	.90
Female	1.75	1.51	.26

Table 6. Analysis of variance of mean Teaching Efficacy change scores according to gender and years of teaching experience.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	26.011	3	8.670	.295	.829
Gender	.001	1	.001	.000	.994
Experience	26.009	2	13.004	.443	.643
2-Way Interactions					
Gender by Exper.	53.986	2	26.993	.919	.401

Results of the two-way analysis of variance test showed that there was no interaction between the mean Teaching Efficacy change scores and the gender and experience of the teacher. Based on these results, Hypothesis 3 was retained.

Hypothesis 4

Hypothesis 4 stated that there was no interaction between teachers' gender and grade level taught as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale. The data are contained in Tables 7 and 8.

The results of the two-way analysis of variance indicated that there was no interaction between the means of the pre-test and post-test change scores of the Overall Teacher Efficacy Scale and the gender of the participants and the grade level taught. Based on these results, Hypothesis 4 was retained.

Table 7. Table of means for Overall Teacher Efficacy change scores according to gender and grade level taught.

Gender	Grade Level Taught			
	Elem.	Mid.Sch.	High Sch.	Higher Ed.
Male	10.53	4.69	7.63	11.33
Female	7.73	5.35	9.00	4.00

Table 8. Analysis of variance of mean Overall Teacher Efficacy change scores according to gender and grade level taught.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	340.772	4	85.193	1.513	.201
Gender	23.916	1	23.916	.425	.515
Grade Level	328.822	3	109.607	1.947	.124
2-Way Interactions					
Gender by Grade	180.415	3	60.138	1.068	.364

Hypothesis 5

Hypothesis 5 stated that there was no interaction between pre-test and post-test mean scores of the Personal Efficacy dimension of the Teacher Efficacy Scale and teachers' gender and grade level taught. The data are contained in Tables 9 and 10.

Table 9. Table of means for Personal Efficacy change scores according to gender and grade level taught.

Gender	Grade Level Taught			
	Elem.	Mid.Sch.	High Sch.	Higher Ed.
Male	7.79	4.76	8.00	8.86
Female	6.56	5.91	7.86	6.00

Table 10. Analysis of variance of mean Personal Efficacy change scores according to gender and grade level taught.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	140.517	4	35.129	1.490	.207
Gender	3.873	1	3.873	.164	.686
Grade Level	132.610	3	44.203	1.874	.136
2-Way Interactions					
Gender by Grade	40.473	3	13.491	.572	.634

Results of the two-way analysis of variance test showed that there was no interaction between the mean change scores in the pre-test and post-test scores of the Personal Efficacy dimension of the Teacher Efficacy Scale and teachers' gender and grade level taught. Based on these results, Hypothesis 5 was retained.

Hypothesis 6

Hypothesis 6 stated that there was no interaction between the gender of the participants and their level of teaching and the mean change in the pre-test and post-test scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale. The data are contained in Tables 11 and 12.

The results of the two-way analysis of variance showed that there was no interaction between the gender of the

participants and their level of teaching and the mean change scores in the pre-test and post-test of the Teaching Efficacy dimension of the Teacher Efficacy Scale. Based on these results, Hypothesis 6 was retained.

Table 11. Table of means for Teaching Efficacy change scores according to gender and grade level taught.

Gender	Grade Level Taught			
	Elem.	Mid.Sch.	High Sch.	Higher Ed.
Male	2.50	-.50	-.07	2.67
Female	1.20	-.57	1.05	-2.00

Table 12. Analysis of variance of mean Teaching Efficacy change scores according to gender and grade level taught.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	125.241	4	31.310	1.084	.366
Gender	4.975	1	4.975	.172	.679
Grade Level	125.116	3	41.705	1.444	.232
2-Way Interactions					
Gender by Grade	62.214	3	20.738	.718	.542

Hypothesis 7

Hypothesis 7 stated that there was no interaction between the pre-test and post-test Overall Teacher Efficacy change scores and the gender of the teachers and the

ability level of the students. The data are contained in Tables 13 and 14.

Table 13. Table of means for Overall Teacher Efficacy change scores according to gender and ability level of students.

Gender	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
Male	8.00	-2.00	8.07	10.00
Female	9.92	7.00	7.15	9.33

Table 14. Analysis of variance of mean Overall Teacher Efficacy change scores according to gender and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	70.529	4	17.632	.302	.877
Gender	12.055	1	12.055	.206	.650
Student Abil.	58.578	3	29.526	.334	.801
2-Way Interactions					
Gender by Abil.	91.107	3	30.369	.519	.670

The results of the two-way analysis of variance showed that there was no interaction between the pre-test and post-test Overall Teacher Efficacy change scores and the gender of the teachers and the student ability level. Based on these results, Hypothesis 7 was retained.

Hypothesis 8

Hypothesis 8 stated that there was no interaction between the gender of the teachers and the ability level of their students and the mean pre-test and post-test change scores of the Personal Efficacy dimension of the Teacher Efficacy Scale. The data are contained in Tables 15 and 16.

Table 15. Table of means for Personal Efficacy change scores according to gender and ability level of students.

Gender	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
Male	5.00	4.00	7.21	12.00
Female	6.92	6.43	6.58	8.00

Table 16. Analysis of variance of mean Personal Efficacy change scores according to gender and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	33.517	4	8.379	.346	.847
Gender	7.728	1	7.728	.319	.573
Student Abil.	25.611	3	8,537	.352	.788
2-Way Interactions					
Gender by Abil.	35.275	3	11.758	.485	.693

The results of the two-way analysis of variance indicated there was no interaction between the pre-test and post-test mean scores on the Personal Efficacy subtest of the Teacher Efficacy Scale and the gender of the teachers and the ability level of their students. Based on these results, Hypothesis 8 was retained.

Hypothesis 9

Hypothesis 9 stated that there was no interaction between the mean pre-test and post-test scores of the Teaching Efficacy dimension of the Teacher Efficacy Scale and the gender of the teachers and ability level of their students. The data are contained in Tables 17 and 18.

The results of the two-way analysis of variance test showed that there was no interaction between the pre-test and post-test mean scores on the Teaching Efficacy subtest of the Teacher Efficacy Scale and the gender of the teachers and the ability level of their students. Based on these results, Hypothesis 9 was retained.

Table 17. Table of means for Teaching Efficacy change scores according to gender and ability level of students.

Gender	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
Male	3.00	-6.00	.73	-2.00
Female	2.00	.38	.66	1.00

Table 18. Analysis of variance of mean Teaching Efficacy change scores according to gender and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	58.279	4	12.070	.410	.801
Gender	.103	1	.103	.004	.953
Student Abil.	48.154	3	16.051	.546	.652
2-Way Interactions					
Gender by Abil.	45.991	3	15.330	.521	.668

Hypothesis 10

Hypothesis 10 stated that there was no interaction between grade level of teaching and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale. The data are contained in Tables 19 and 20.

Table 19. Table of means for Overall Teacher Efficacy change scores according to grade level taught and ability level of students.

Grade Level Taught	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
Element.	8.10	4.33	8.53	10.00
Mid. Sch.	5.00	9.00	4.62	.00
High Sch.	10.60	-2.00	8.09	9.33
Higher Ed.	.00	.00	8.40	.00

Table 20. Analysis of variance of mean Overall Teacher Efficacy change scores according to grade level taught and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	335.153	6	55.859	.974	.445
Grade Level	276.679	3	92.226	1.608	.190
Student Abil.	18.297	3	6.099	.106	.956
2-Way Interactions					
Grade by Ability	241.539	5	48.308	.842	.522

The results of the two-way analysis of variance test showed that there was no interaction between the pre-test and post-test mean scores of the Overall Teacher efficacy Scale and the grade level of teaching and ability level of students. Based on these results, Hypothesis 10 was retained.

Hypothesis 11

Hypothesis 11 stated that there was no interaction between grade level of teaching and ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Personal Efficacy dimension of the Teacher Efficacy Scale. The data are contained in Tables 21 and 22.

The results of the two-way analysis of variance showed that there was no interaction between the grade level of

teaching and ability level of the students and the change of mean pre-test and post-test scores of the Personal Efficacy dimension of the Teacher Efficacy Scale. Based on these results, Hypothesis 11 was retained.

Table 21. Table of means for Personal Efficacy change scores according to grade level taught and ability level of students.

Grade Level Taught	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
Element.	6.60	6.00	6.81	12.00
Mid. Sch.	-1.00	6.75	5.46	.00
High Sch.	7.60	4.00	8.09	8.00
Higher Ed	.00	.00	7.60	.00

Table 22. Analysis of variance of mean Personal Efficacy change scores according to grade level taught and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	149.814	6	24.969	1.047	.397
Grade Level	124.024	3	41.341	1.734	.162
Student Abil.	13.170	3	4.390	.184	.907
2-Way Interactions					
Grade by Ability	81.363	5	16.273	.682	.637

Hypothesis 12

Hypothesis 12 stated that there was no interaction between grade level taught and ability level of students as

measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Teaching Efficacy dimension of the Teacher Efficacy Scale. The data are contained in Tables 23 and 24.

Table 23. Table of means for Teaching Efficacy change scores according to grade level taught and ability level of students.

Grade Level Taught	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
Element.	1.50	-1.50	1.67	-2.00
Mid. Sch.	6.00	2.25	-1.06	.00
High Sch.	3.00	-6.00	.18	1.00
Higher Ed	.00	.00	.80	.00

Table 24. Analysis of variance of mean Teaching Efficacy change scores according to grade level taught and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	152.455	6	25.409	.885	.507
Grade Level	104.278	3	34.759	1.210	.308
Student Abil.	32.188	3	10.729	.374	.772
2-Way Interactions					
Grade by Ability	178.995	5	35.799	1.247	.289

The results of the two-way analysis of variance showed that there was no interaction between the pre-test and post-test mean scores of the Teaching Efficacy subtest of

the Teacher Efficacy Scale and the grade level of teaching and ability level of students. Based on these results, Hypothesis 12 was retained.

Hypothesis 13

Hypothesis 13 stated that there was no interaction between grade level of teaching and number of years of teaching experience of the participating teachers as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale. The data are contained in Tables 25 and 26.

The results of the two-way analysis of variance showed that there was a significant interaction between the grade level of teaching and the years of teaching experience of the participating teachers and the pre-test and post-test mean change scores of the Overall Teacher Efficacy Scale. Therefore, Hypothesis 13 was rejected, indicating that the

Table 25. Table of means for Overall Teacher Efficacy change scores according to grade level taught and years of teaching experience.

Grade Level Taught	Years of Teaching Experience		
	0-2 Years	3-8 Years	9 or More Years
Element.	12.00	9.73	7.33
Mid. Sch.	9.40	3.89	4.58
High Sch.	9.83	-2.00	9.18
Higher Ed	.00	4.00	11.33

Table 26. Analysis of variance of mean Overall Teacher Efficacy change scores according to grade level taught and years of teaching experience.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	471.759	5	94.352	1.743	.128
Grade Level	346.837	3	115.612	2.136	.098
Experience	165.529	2	82.765	1.529	.220
2-Way Interactions					
Grade by Exper.	634.907	5	126.981	2.346	.044

grade level taught by the teachers and the number of years of teaching experience had an interaction effect in the degree of Overall Efficacy scores.

Hypothesis 14

Hypothesis 14 stated that there was no interaction between the grade level of teaching and the number of years of teaching experience as measured by the change in pre-test and post-test mean scores of the Personal Efficacy subtest of the teacher Efficacy Scale. The data are contained in Tables 27 and 28.

The results of the two-way analysis of variance showed that there was a significant interaction between the pre-test and post-test mean scores of the Personal Efficacy subtest of the Teacher Efficacy Scale and the grade level of teaching and the number of years of experience.

Therefore, Hypothesis 14 was rejected. The results indicated the participation in the Hunter Model positively affected the Personal Efficacy mean scores of the teachers based on the grade level of their students and the number of years of teaching experience.

Table 27. Table of means for Personal Efficacy change scores according to grade level taught and years of teaching experience.

Years Teaching Exper.	Grade Level Taught			
	Elem.	Mid.Sch.	High Sch.	Higher Ed
0-2	11.00	6.40	8.50	.00
3-8	7.54	4.40	1.00	6.00
9+	6.12	5.83	8.63	8.67

Table 28. Analysis of variance of mean Personal Efficacy change scores according to grade level taught and years of teaching experience.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	177.828	5	35.566	1.604	.162
Experience	54.662	2	27.331	1.233	.294
Grade Level	114.925	3	38.308	1.728	.163
2-Way Interactions					
Exper. by Grade	295.131	5	59.026	2.663	.024

Hypothesis 15

Hypothesis 15 stated that there was no interaction between grade level of the students and the number of years of experience of the teachers as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale. The data are contained in Tables 29 and 30.

Table 29. Table of means for Teaching Efficacy change scores according to grade level taught and years of teaching experience.

Years Teaching Exper.	Grade Level Taught			
	Elem.	Mid.Sch.	High Sch.	Higher Ed
0-2	1.00	3.00	1.33	.00
3-8	2.23	-1.22	-1.40	-2.00
9+	1.12	-1.25	.50	2.67

Table 30. Analysis of variance of mean Teaching Efficacy change scores according to grade level taught and years of teaching experience.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	171.050	5	34.210	1.178	.322
Experience	38.683	2	19.341	.666	.515
Grade Level	145.041	3	48.347	1.665	.176
2-Way Interactions					
Exper. by Grade	113.038	5	22.608	.778	.567

The results of the two-way analysis of variance test showed that there was no interaction between the grade level of the students and the number of years experience of the teacher and the pre-test and post-test change in mean scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale. Based on these results, Hypothesis 15 was retained.

Hypothesis 16

Hypothesis 16 stated that there was no interaction between the number of years of experience of the participants and the ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale. The data are contained in Tables 31 and 32.

The results of the two-way analysis of variance test showed that there was no interaction between the pre-test and post-test change scores of the Overall Teacher Efficacy

Table 31. Table of means for Overall Teacher Efficacy change scores according to years of teaching experience and ability level of students.

Years Teaching Exper.	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
0-2	21.00	.00	9.50	.00
3-8	8.00	3.50	7.11	.00
9+	7.82	6.67	7.30	9.50

Table 32. Analysis of variance of mean Overall Teacher Efficacy change scores according to years of teaching experience and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	184.337	5	36.867	.631	.676
Experience	125.036	2	62.518	1.070	.345
Student Abil.	59.415	3	19.805	.339	.797
2-Way Interactions					
Exper. by Ability	116.713	3	38.904	.644	.740

Scale and the number of years of experience of the participating teachers and the ability level of their students. Based on these results, Hypothesis 16 was retained.

Hypothesis 17

Hypothesis 17 stated that there was no interaction between the number of years of experience of the participants and the ability level of students as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Personal Efficacy subtest of the Teacher Efficacy Scale. The data are contained in Tables 33 and 34.

The results of the two-way analysis of variance test showed that there was no interaction between the number of years of experience of the teachers and ability level of

the students and the change in pre-test and post-test mean scores of the Personal Efficacy subtest of the Teacher Efficacy Scale. Based on these results, Hypothesis 17 was retained.

Table 33. Table of means for Personal Efficacy change scores according to years of teaching experience and ability level of students.

Years Teaching Exper.	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
0-2	11.00	.00	8.29	.00
3-8	6.50	4.50	6.14	.00
9+	6.00	6.67	6.87	8.80

Table 34. Analysis of variance of mean Personal Efficacy change scores according to years of teaching experience and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	86.072	5	17.214	.714	.614
Experience	60.269	2	30.135	1.250	.289
Student Abil.	23.168	3	7.723	.320	.811
2-Way Interactions					
Exper. by Ability	16.704	3	5.568	.231	.875

Hypothesis 18

Hypothesis 18 stated that there was no interaction between the years of experience of the participating

teachers and the ability level of the students and the pre-test and post-test mean change scores of the Teaching Efficacy subtest of the Teacher Efficacy Scale. The data are contained in Tables 35 and 36.

Table 35. Table of means for Teaching Efficacy change scores according to years of teaching experience and ability level of students.

Years Teaching Exper.	Ability Level of Students			
	Special Ed.	Remedial	Regular Ed.	Advanced
0-2	10.00	.00	1.21	.00
3-8	1.50	-1.00	1.02	.00
9+	1.82	-.14	.42	.25

Table 36. Analysis of variance of mean Teaching Efficacy change scores according to years of teaching experience and ability level of students.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
Main Effects	73.948	5	14.790	.500	.776
Experience	24.883	2	12.442	.420	.657
Student Abil.	47.939	3	15.980	.540	.656
2-Way Interactions					
Exper. by Ability	55.996	3	18.665	.631	.596

The results of the two-way analysis of variance showed that there was no interaction between the pre-test and post-test scores of the Teaching Efficacy subtest of the

Teacher Efficacy Scale and the number of years of experience of the teachers and the ability level of the students. Based on these results, Hypothesis 18 was retained.

Hypothesis 19

Hypothesis 19 stated that there was no significant difference between the participating school districts in the change in pre-test and post-test mean scores of Overall Sense of Efficacy as measured by the Teacher Efficacy Scale. The data are contained in Tables 37 and 38.

The analysis of variance showed that there were no significant differences in the Overall Efficacy pre-test and post-test change scores between the participating school districts. Based on these results, Hypothesis 19 was retained.

Table 37. Table of means for Overall Teacher Efficacy change scores according to the participating school districts.

School District	N	Mean Change	Standard Deviation
District 1	5	4.8000	3.0332
District 2	30	6.1333	7.2385
District 3	28	8.0000	6.1222
District 4	14	6.4286	5.7874
District 5	9	10.6667	11.5217
District 6	9	12.1111	7.3220
District 7	14	10.7143	6.9992
District 8	17	5.3529	6.9367
District 9	18	9.7778	9.6623
District 10	11	4.6364	6.2653
District 11	18	6.5000	8.0750

Table 38. Analysis of variance of mean Overall Teacher Efficacy change scores according to the participating school districts.

Source of Variation	Sum of Squares	DF	Mean Square	F	F Prob.
Between Groups	820.5545	10	82.0554	1.487	.1516
Within Groups	8989.4802	162	55.4906		
Total	9810.0347	172			

Hypothesis 20

Hypothesis 20 stated that there was no significant difference between the participating school districts in the change in pre-test and post-test mean scores of the Personal Efficacy dimension of the Teacher Efficacy Scale. The data are contained in Tables 39 and 40.

Table 39. Table of means for Personal Efficacy change scores according to the participating school districts.

School District	N	Mean Change	Standard Deviation
District 1	5	4.0000	4.1833
District 2	30	6.9667	4.7013
District 3	28	5.7143	3.5679
District 4	14	5.0714	3.2217
District 5	9	8.7778	5.9114
District 6	11	8.6364	5.6084
District 7	14	7.9286	4.6816
District 8	19	5.3684	4.8098
District 9	19	9.3684	5.9648
District 10	12	5.4167	3.9187
District 11	18	7.1667	5.5545

Table 40. Analysis of variance of mean Personal Efficacy change scores according to the participating school districts.

Source of Variation	Sum of Squares	DF	Mean Square	F	F Prob.
Between Groups	394.6440	10	39.4644	1.7361	.0764
Within Groups	3818.8979	168	22.7315		
Total	4213.5419	178			

The analysis of variance showed that there were no significant differences in the pre-test and post-test change scores in the Personal Efficacy dimension of the Teacher Efficacy Scale between the participating school districts. Based on these results, Hypothesis 20 was retained.

Hypothesis 21

Hypothesis 21 stated that there was no significant difference between the participating school districts in the change in pre-test and post-test mean scores of the Teaching Efficacy dimension of the Teacher Efficacy Scale. The data are contained in Tables 41 and 42.

The analysis of variance showed that there were no significant differences between the participating districts and the change in pre-test and post-test mean scores in the Teaching Efficacy dimension of the Teacher Efficacy Scale. Based on these results, Hypothesis 21 was retained.

Table 41. Table of means for Teaching Efficacy change scores according to the participating school districts.

School District	N	Mean Change	Standard Deviation
District 1	5	.8000	3.1937
District 2	31	-.9032	5.4366
District 3	29	2.6207	4.9165
District 4	15	1.2000	5.3077
District 5	13	.7692	6.0849
District 6	10	3.5000	3.7786
District 7	14	2.7857	5.4233
District 8	18	-.5556	6.0120
District 9	19	1.1053	5.5767
District 10	13	-.9231	4.2123
District 11	18	-.6667	5.5836

Table 42. Analysis of variance of mean Teaching Efficacy change scores according to the participating school districts.

Source of Variation	Sum of Squares	DF	Mean Square	F	F Prob.
Between Groups	428.4760	10	42.8476	1.5306	.1320
Within Groups	4871.0591	174	27.9946		
Total	5299.5351	184			

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to summarize the important points from the previous chapters and to analyze the meaning of the data. There are three sections within this chapter. A summary of the chapters is given in the first section, in addition to the findings of the study. In the second section, conclusions are drawn. The recommendations are offered in the third section.

Summary

In the last ten years, there has been a great deal of research which has been conducted in the area of teacher effectiveness. Several "models of teaching" have been introduced which have produced positive student and teacher gains. Included in these models is the Hunter Instructional Model developed by Madeline Hunter of the University of California at Los Angeles.

A criticism of the Hunter Instructional Model has been that there is insufficient research concerning the model, especially in the areas of teacher behavior and student gains.

One area concerning teacher behavior is the Sense of Teachers' Efficacy, which refers to how teacher behavior affects the feelings and thoughts of teachers to help their students learn. Two dimensions of Overall Sense of Teachers' Efficacy are: (1) Teaching Efficacy, or the expectation that teaching can influence student learning, and (2) Personal Efficacy, or the assessment by the individual teacher of his/her own teaching competence.

The problems of the study were to determine if there was any change or difference in Overall Efficacy, Teaching Efficacy and Personal Efficacy in teachers as a result of training in the Hunter Instructional Model. In addition, teacher characteristics of gender, grade level of students, years of teachers' experience, and ability level of the students were studied to determine if any one or combination of the characteristics affected Overall Efficacy or the two dimensions of Teaching Efficacy and Personal Efficacy.

The data for the study were obtained using the teacher Efficacy Scale developed by Sherri Gibson. The population of the study consisted of the teachers of the nine participating school districts which offered training in the Hunter Instructional Model during the 1987-88 school year.

The related literature was reviewed in Chapter 2 of this study under seven main topics: (1) Development of the Hunter Instructional Model, (2) What Is the Hunter

Instructional Model? A Description of the Model, (3) Related Research Studies and Programs Using the Hunter Model, (4) Criticisms of the Model and Hunter's Responses, (5) Reasons for Success of the Hunter Instructional Model, (6) Chronological Development of Teachers' Sense of Efficacy, and (7) Research Related to Teachers' Sense of Efficacy.

Included in the review of the literature in Chapter 2 of the study was the development and background of the Hunter Instructional Model and Madeline Hunter's ideas of the process of teaching. A thorough description of the Hunter Instructional Model was given, including a comprehensive overview of the model in Figure 1 with its major elements.

The related research and examples of the programs using the Hunter Instructional Model were presented. Because the Hunter Instructional Model has been controversial, a review of the criticisms was presented along with Madeline Hunter's responses. Finally, an overview of reasons why the Hunter Instructional Model has enjoyed success was presented.

The concept of Teachers' Sense of Efficacy was presented with a chronological development given in the last portion of Chapter 2. Albert Bandera's (1977) "self-efficacy" construct was presented along with the application of the construct to education by the Rand Studies

(Berman et al., 1977; Armor et al., 1976; and Ashton and Webb, 1986).

The two dimensions of Teachers' Sense of Efficacy were discussed, including Teaching Efficacy and Personal Efficacy, and the additional research related to Teachers' Sense of Efficacy was reviewed.

Finally, a description of the Teacher Efficacy Scale, including its development and validation, was presented as the data collecting instrument for the study. Of the thirty total questions, sixteen were considered in the analysis.

The methods and procedures of the study were described in Chapter 3, including a description of the population, the data collection procedures, the hypotheses that tested the research problems, and the statistical procedures that were applied in the analysis of the data.

Results

In summary, data from Hypothesis 19 of the study showed there was a positive gain in all of the participating school districts in Overall Efficacy, although, according to the data, the training in the Hunter Instructional Model did not appear to be systematically better or worse from school district to school district. There were no significant differences in Overall Efficacy pre-test and post-test change scores among the participating school

districts, indicating that external factors such as differences in trainers, length of the courses, and timing in the school districts did not inhibit the gains in Overall Efficacy. Therefore, if there were notable events that happened in the districts, these events did not significantly influence the gains in Overall Efficacy, since the amounts of gain among the various school districts were not significantly different.

Analysis of the data of Hypothesis 20 indicated there were positive change scores in all of the participating school districts in the Personal Efficacy dimension of Overall Efficacy, which refers to the individual teacher's assessment of his/her own teaching competence. Because there were no significant differences among the districts in the pre-test and post-test change scores, external factors of the individual districts did not appear to influence the training process.

According to analysis of the data of Hypothesis 21, not all of the participating districts made positive gains in the Teaching Efficacy dimension of Overall Efficacy, which refers to teachers' expectations that teaching can influence student learning. Four of the nine districts registered a negative mean change score, although there was no significant difference in the change in Teaching Efficacy among the participating school districts. As noted in the earlier discussion, even though some of the

school districts registered negative change scores, the amount of change was not significantly different from school district to school district.

Analysis of the data was completed to determine if the teacher characteristics of (1) gender, (2) grade level of teaching, (3) teacher's years of experience, and (4) the ability level of the students being taught made a significant difference in Overall Efficacy. A series of two-way analysis of variance measures were completed to test for interaction between the pre-test and post-test change scores of the Overall Teachers' Efficacy Scale and the above teacher characteristics.

The results of the data indicated that there was no significant interaction in Overall Efficacy change scores in the following teacher characteristics: (1) gender and years of teaching experience, (2) gender and level of teaching, (3) gender and ability level of the students taught, (4) level of teaching and ability level of the students taught, and (5) experience of the teachers and ability level of the students taught.

The results of the t-test to determine if there was a significant difference between the pre-test and post-test score in the Overall Efficacy and Personal and Teaching dimensions indicated a significant difference in Personal Efficacy and Overall Efficacy ($p < .05$), while a

significant difference was not found in the Teaching Efficacy dimension (see Table 48, Appendix L).

The only hypothesis dealing with Overall Efficacy change scores to be rejected was Hypothesis 13 which stated that there was no significant interaction between the level of teaching and the years of teaching experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Overall Teacher Efficacy Scale. Figure 4 (Appendix G) illustrates the interaction.

As shown in Figure 4, teachers with nine or more years of teaching experience had less Overall Efficacy change in the elementary level than the three to eight year category, but had greater change scores as the grade level increased, indicating that Overall Efficacy in this category was more likely to occur in teachers who were instructing older students. Conversely, the data indicated teachers in the three to eight year category had their greatest Overall Efficacy change in the elementary level and significantly declined in the higher grade level categories. Beginning teachers had high Overall Efficacy change scores in all grade levels.

The analysis of the data indicated that there was no significant interaction in Personal Efficacy change scores in the following combinations of teacher characteristics: (1) gender and years of experience, (2) gender and level of teaching, (3) gender and ability level of the students

taught, (4) level of teaching and ability level of students being taught, and (5) years of teaching experience and ability level of the students taught.

The data from Hypothesis 14 indicated the only interaction in Personal Efficacy change scores. Thus, Hypothesis 14 was rejected. It stated that there was no significant interaction between the level of teaching and years of teaching experience as measured by the change in pre-test and post-test Teachers' Sense of Efficacy scores of the Personal Efficacy dimension of the Teacher Efficacy Scale. Figure 5 (Appendix H) illustrates the interaction.

As shown in Figure 5, the teachers with nine or more years of teaching experience had less Personal Efficacy change in the elementary level than the other two categories, similar to the Overall Efficacy change, but had the highest change scores in the high school and upper level, while those teachers with three to eight years of experience showed a comparable decline toward high school. Beginning teachers indicated generally high change scores in all grade levels except middle school/junior high school.

Finally, the results of the data showed that there was no significant interaction in Teaching Efficacy change scores in the following combination of teacher characteristics: (1) gender and years of teaching experience, (2) gender and level of teaching, (3) gender and ability level of students being taught, (4) level of teaching and

years of experience, (5) level of teaching and ability level of students being taught, and (6) years of teaching experience and ability level of students being taught. The above represent all of the possible teacher characteristic combinations, indicating there was no interaction for Teaching Efficacy change scores.

Conclusions

There were positive gains in all of the districts in both Overall Efficacy and the Personal Efficacy dimension, which refers to individual teacher's assessment of his/her own teaching competence, while some of the districts showed negative gains in Teaching Efficacy, which refers to teachers' expectations that teaching can influence student learning. Therefore, the following conclusions are offered:

- (1) Training in the Hunter Instructional Model significantly changed the attitudes and opinions of the teachers about their ability to teach (see Table 48, Appendix L), which is consistent with the intent and purpose of the inservice training. Therefore, these results appear to support the assertions of Davidman (1984), as noted in Chapter 1, that the Hunter Instructional Model does provide positive change and "empirically establishes" that the teachers in the study believe they have a "greater sense of

intellectual control over their very complex work environment . . . as well as improved instructional techniques" (p. 12). Further, as can be seen in Table 45 (Appendix I), Personal Efficacy change scores increased from ten percent in one district to as much as twenty-four percent in another district, indicating that training in the Hunter Instructional Model had a positive effect on the teachers and their attitudes about their ability to teach.

- (2) Training in the Hunter Instructional Model did not significantly provide a positive change in the teachers' attitudes and opinions about students' ability to learn (see Table 48, Appendix L), although the change scores were not significantly different among districts and the negative change scores were minimal (see Table 46, Appendix J). This could be because the Hunter Instructional Model is not specifically directed toward the Teaching Efficacy dimension of the Overall Sense of Teachers' Efficacy. The fact that the largest positive change was thirteen percent and the negative change was three percent would appear to suggest this conclusion. In addition, the difference in change scores was not significant at the .05 level. Therefore, school districts seeking to adapt a strategy to increase Teaching Efficacy would need to

address this issue with an additional dimension or programs.

- (3) Training in the Hunter Instructional Model significantly changed the Overall Sense of Teachers' Efficacy (see Table 47, Appendix K). Because the Overall Sense of Teachers' Efficacy is made up of the two dimensions of Teaching and Personal Efficacy, this conclusion is based primarily on the strength of the positive change of the Personal Efficacy dimension. As can be seen in Table 48 (Appendix L), the difference between the pre-test and post-test scores were significant at the .05 level.
- (4) The gender of the teachers involved in training in the Hunter Instructional Model had no effect on Overall Efficacy or the two dimensions of Teaching Efficacy and Personal Efficacy. Therefore, this would indicate that it makes little difference whether the teacher is male or female with regard to the effect that the training has on them.
- (5) The ability level of the students taught by teachers involved in training in the Hunter Instructional had minimal effect on Overall Efficacy or the two dimensions of Personal Efficacy and Teaching Efficacy. Therefore, the ability level of the student did not appear to significantly influence the Overall Sense of Efficacy of teachers in this study. This contradicts

the findings of previous researchers which indicated that the lower the ability level of the student taught, the lower the expectation effect of Teachers' Sense of Efficacy. It should be noted, however, that the majority of teachers in the study worked with regular education students.

- (6) Beginning teachers experienced the highest Overall Efficacy changes and would appear to be the group most likely to gain maximum benefit from the Hunter Instructional Model training.
- (7) Teachers at the high school level would receive maximum benefit from the training in terms of positive change in either the beginning of their careers or after nine years of experience. In practical terms, this would not mean that high school teachers in the three to eight year experience category shouldn't receive the inservice training, but rather it could indicate that:
 - (a) the teachers in this experience category may have started the training with a relatively high Sense of Efficacy, and thus there was little change; or
 - (b) the teachers in this experience category may have started the training with a low Sense of Efficacy and the training did little to increase or change it.

Therefore, school district personnel responsible for inservice training should recognize this characteristic of high school teachers in their mid-years of experience.

- (8) Teachers at the junior high/middle school teaching level are best inserviced in the Hunter Instructional Model in the beginning years of their experience.
- (9) Since elementary teachers had an Overall Efficacy change at any level of experience, inservice training can be offered at any point of their experience. This might be due to the fact that elementary teaching tends to be child oriented with emphasis on teaching techniques (such as those emphasized in the Hunter Model) as opposed to secondary teaching where subject matter has traditionally been emphasized.

Recommendations

The following are offered as recommendations for further study:

- (1) An investigation that further measures the strength and specific amount of change in Teachers' Sense of Efficacy should be explored to determine the exact amount of change.
- (2) Further study into other situational and organizational variables such as different areas and states should be investigated to determine if Teacher

Efficacy is situation specific and may be generalized to other settings.

- (3) This study may be extended by further correlating Teachers' Sense of Efficacy with student achievement.
- (4) Further investigation to determine why teachers in the three to eight years of experience category seem to have less change in Teacher Efficacy than the other experience groups.
- (5) A study dealing with other teaching models should be pursued to see if similar results occur as with the Hunter Instructional Model.

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APPENDICES

APPENDIX A

DISTRICTS PARTICIPATING IN THE STUDY

Table 43. Districts participating in the study.

District	No. of Participants	Location (Region)
Aberdeen	5	Eastern
Blackfoot (group #1)	31	Eastern
Blackfoot (group #2)	30	Eastern
Boise	15	Southwestern
Coeur d'Alene	29	Northern
Kuna	13	Southwestern
Lewiston	16	Northern
Moscow	23	Northern
Pocatello (group #1)	24	Southeastern
Pocatello (group #2)	18	Southeastern
Filer-Twin Falls	20	Magic Valley

APPENDIX B

TEACHER EFFICACY SCALE, FORM A

Dear Participant,

Thank you very much for completing the following scale. The information from your responses will be used as part of a study on the effect of the Hunter Instructional Model on Teachers' Sense of Efficacy. Your responses will be kept strictly confidential.

Because you will be asked to complete both a pre- and post-instruction measure, you are requested to complete the following demographic data in addition to a four-digit number, such as the last 4 digits of your social security number, so that both pre- and post-measures can be matched.

Again, all responses will be kept in complete confidence.

Sincerely,

Ronald Bolinger, Chairman
Study Committee

PLEASE INDICATE THE FOLLOWING BY CHECKING THE RESPONSE THAT APPLIES TO YOU AS AN EDUCATOR:

- (1) Your gender: Male Female
- (2) The grade level of students you work with the majority of the time:
 Elementary School Middle School or Jr. High
 High school
- (3) The number of years you have been an educator, including the 1987-88 school year:
 0-2 years 3-8 years 9 years or more
- (4) The ability level of students you teach in the majority of your assignments:
 Special education (i.e., learning disabled--mild, moderate, or severe)
 Remedial or "basic" education (i.e., Chapter I)
 Regular education program
 Advanced (i.e., gifted-talented)
- (5) The last four (4) digits of your social security number:

TEACHER EFFICACY SCALE

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Form A

Please indicate the degree to which you agree or disagree with each statement below by circling the appropriate numeral to the right of each statement.

	<i>Strongly disagree</i>	<i>Moderately disagree</i>	<i>Disagree slightly more than agree</i>	<i>Agree slightly more than disagree</i>	<i>Moderately agree</i>	<i>Strongly agree</i>
1. When a student does better than usual, many times it is because I exerted a little extra effort.	1	2	3	4	5	6
2. The hours in my class have little influence on students compared to the influence of their home environment.	1	2	3	4	5	6
3. If parents comment to me that their child behaves much better at school than he/she does at home, it would probably be because I have some specific techniques of managing his/her behavior which they may lack.	1	2	3	4	5	6
4. The amount that a student can learn is primarily related to family background.	1	2	3	4	5	6
5. If a teacher has adequate skills and motivation, she/he can get through to the most difficult students.	1	2	3	4	5	6
6. If students aren't disciplined at home, they aren't likely to accept any discipline.	1	2	3	4	5	6
7. I have enough training to deal with almost any learning problem.	1	2	3	4	5	6
8. My teacher training program and/or experience has given me the necessary skills to be an effective teacher.	1	2	3	4	5	6
9. Many teachers are stymied in their attempts to help students by lack of support from the community.	1	2	3	4	5	6
10. Some students need to be placed in slower groups so they are not subjected to unrealistic expectations.	1	2	3	4	5	6
11. Individual differences among teachers account for the wide variations in student achievement.	1	2	3	4	5	6
12. When a student is having difficulty with an assignment, I am usually able to adjust it to his/her level.	1	2	3	4	5	6
13. If one of my new students cannot remain on task for a particular assignment, there is little that I could do to increase his/her attention until he/she is ready.	1	2	3	4	5	6
14. When a student gets a better grade than he usually gets, it is usually because I found better ways of teaching that student.	1	2	3	4	5	6
15. When I really try, I can get through to most difficult students.	1	2	3	4	5	6
16. A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement.	1	2	3	4	5	6

	Strongly disagree	Moderately disagree	Disagree slightly more than agree	Agree slightly more than disagree	Moderately agree	Strongly agree
17. Teachers are not a very powerful influence on student achievement when all factors are considered.	1	2	3	4	5	6
18. If students are particularly disruptive one day, I ask myself what I have been doing differently.	1	2	3	4	5	6
19. When the grades of my students improve it is usually because I found more effective teaching approaches.	1	2	3	4	5	6
20. If my principal suggested that I change some of my class curriculum, I would feel confident that I have the necessary skills to implement the unfamiliar curriculum.	1	2	3	4	5	6
21. If a student masters a new math concept quickly, this might be because I knew the necessary steps in teaching that concept.	1	2	3	4	5	6
22. Parent conferences can help a teacher judge how much to expect from a student by giving the teacher an idea of the parents' values toward education, discipline, etc.	1	2	3	4	5	6
23. If parents would do more with their children, I could do more.	1	2	3	4	5	6
24. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.	1	2	3	4	5	6
25. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.	1	2	3	4	5	6
26. School rules and policies hinder my doing the job I was hired to do.	1	2	3	4	5	6
27. The influences of a student's home experiences can be overcome by good teaching.	1	2	3	4	5	6
28. When a child progresses after being placed in a slower group, it is usually because the teacher has had a chance to give him/her extra attention.	1	2	3	4	5	6
29. If one of my students couldn't do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.	1	2	3	4	5	6
30. Even a teacher with good teaching abilities may not reach many students.	1	2	3	4	5	6

APPENDIX C

TEACHER EFFICACY SCALE, FORM B

Dear Participant,

Thank you very much for completing the following scale. The information from your responses will be used as part of a study on the effect of the Hunter Instructional Model on Teachers' Sense of Efficacy. Your responses will be kept strictly confidential.

Because you will be asked to complete both a pre- and post-instruction measure, you are requested to complete the following demographic data in addition to a four-digit number, such as the last 4 digits of your social security number, so that both pre- and post-measures can be matched.

Again, all responses will be kept in complete confidence.

Sincerely,

Ronald Bolinger, Chairman
Study Committee

PLEASE INDICATE THE FOLLOWING BY CHECKING THE RESPONSE THAT APPLIES TO YOU AS AN EDUCATOR:

- (1) Your gender: Male Female
- (2) The grade level of students you work with the majority of the time:
 Elementary School Middle School or Jr. High
 High school
- (3) The number of years you have been an educator, including the 1987-88 school year:
 0-2 years 3-8 years 9 years or more
- (4) The ability level of students you teach in the majority of your assignments:
 Special education (i.e., learning disabled--mild, moderate, or severe)
 Remedial or "basic" education (i.e., Chapter I)
 Regular education program
 Advanced (i.e., gifted-talented)
- (5) The last four (4) digits of your social security number: _ _ _ _

TEACHER EFFICACY SCALE
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Form B

Please indicate the degree to which you agree or disagree with each statement below by circling the appropriate numeral to the right of each statement.

	Strongly disagree	Moderately disagree	Disagree slightly more than agree	Agree slightly more than disagree	Moderately agree	Strongly agree
1. The amount that a student can learn is primarily related to family background.	1	2	3	4	5	6
2. When a student gets a better grade than he usually gets, it is usually because I found better ways of teaching that student.	1	2	3	4	5	6
3. If a student masters a new math concept quickly, this might be because I knew the necessary steps in teaching that concept.	1	2	3	4	5	6
4. The influences of a student's home experiences can be overcome by good teaching.	1	2	3	4	5	6
5. My teacher training program and/or experience has given me the necessary skills to be an effective teacher.	1	2	3	4	5	6
6. When a student does better than usual, many times it is because I exerted a little extra effort.	1	2	3	4	5	6
7. School rules and policies hinder my doing the job I was hired to do.	1	2	3	4	5	6
8. If parents comment to me that their child behaves much better at school than s/he does at home, it would probably be because I have some specific techniques of managing his/her behavior which they may lack.	1	2	3	4	5	6
9. If parents would do more with their children, I could do more.	1	2	3	4	5	6
10. If a teacher has adequate skills and motivation, s/he can get through to the most difficult students.	1	2	3	4	5	6
11. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.	1	2	3	4	5	6
12. A teacher is very limited in what s/he can achieve because a student's home environment is a large influence on his/her achievement.	1	2	3	4	5	6
13. Teachers are not a very powerful influence on student achievement when all factors are considered.	1	2	3	4	5	6
14. If my principal suggested that I change some of my class curriculum, I would feel confident that I have the necessary skills to implement the unfamiliar curriculum.	1	2	3	4	5	6
15. The hours in my class have little influence on students compared to the influence of their home environment.	1	2	3	4	5	6

	Strongly disagree	Moderately disagree	Disagree slightly more than agree	Agree slightly more than disagree	Moderately agree	Strongly agree
16. Parent conferences can help a teacher judge how much to expect from a student by giving the teacher an idea of the parents' values toward education, discipline, etc.	1	2	3	4	5	6
17. Some students need to be placed in slower groups so they are not subjected to unrealistic expectations.	1	2	3	4	5	6
18. Many teachers are stymied in their attempts to help students by lack of support from the community.	1	2	3	4	5	6
19. If students are particularly disruptive one day, I ask myself what I have been doing differently.	1	2	3	4	5	6
20. When a child progresses after being placed in a slower group, it is usually because the teacher has had a chance to give him/her extra attention.	1	2	3	4	5	6
21. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.	1	2	3	4	5	6
22. If one of my students couldn't do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.	1	2	3	4	5	6
23. When I really try, I can get through to most difficult students.	1	2	3	4	5	6
24. If one of my new students cannot remain on task for a particular assignment, there is little that I could do to increase his/her attention until s/he is ready.	1	2	3	4	5	6
25. I have enough training to deal with almost any learning problem.	1	2	3	4	5	6
26. Even a teacher with good teaching abilities may not reach many students.	1	2	3	4	5	6
27. Individual differences among teachers account for the wide variations in student achievement.	1	2	3	4	5	6
28. When a student is having difficulty with an assignment, I am usually able to adjust it to his/her level.	1	2	3	4	5	6
29. When the grades of my students improve it is usually because I found more effective teaching approaches.	1	2	3	4	5	6
30. If students aren't disciplined at home, they aren't likely to accept any discipline.	1	2	3	4	5	6

APPENDIX D

QUESTIONS USED FOR SCORING

TEACHER EFFICACY SCALE

Table 44. Questions used for scoring Teacher Efficacy Scale.

Dimension	Form A	Form B
Personal Efficacy	01	06
	12	28
	14	02
	15	23
	19	29
	21	03
	24	11
	25	21
	29	22
Teaching Efficacy	02*	15*
	04*	01*
	06*	30*
	16*	12*
	23*	09*
	27	04
	30*	26*

*Indicates negatively stated items that were reverse scored.

APPENDIX E

MAP OF PARTICIPATING DISTRICTS

BY AREA

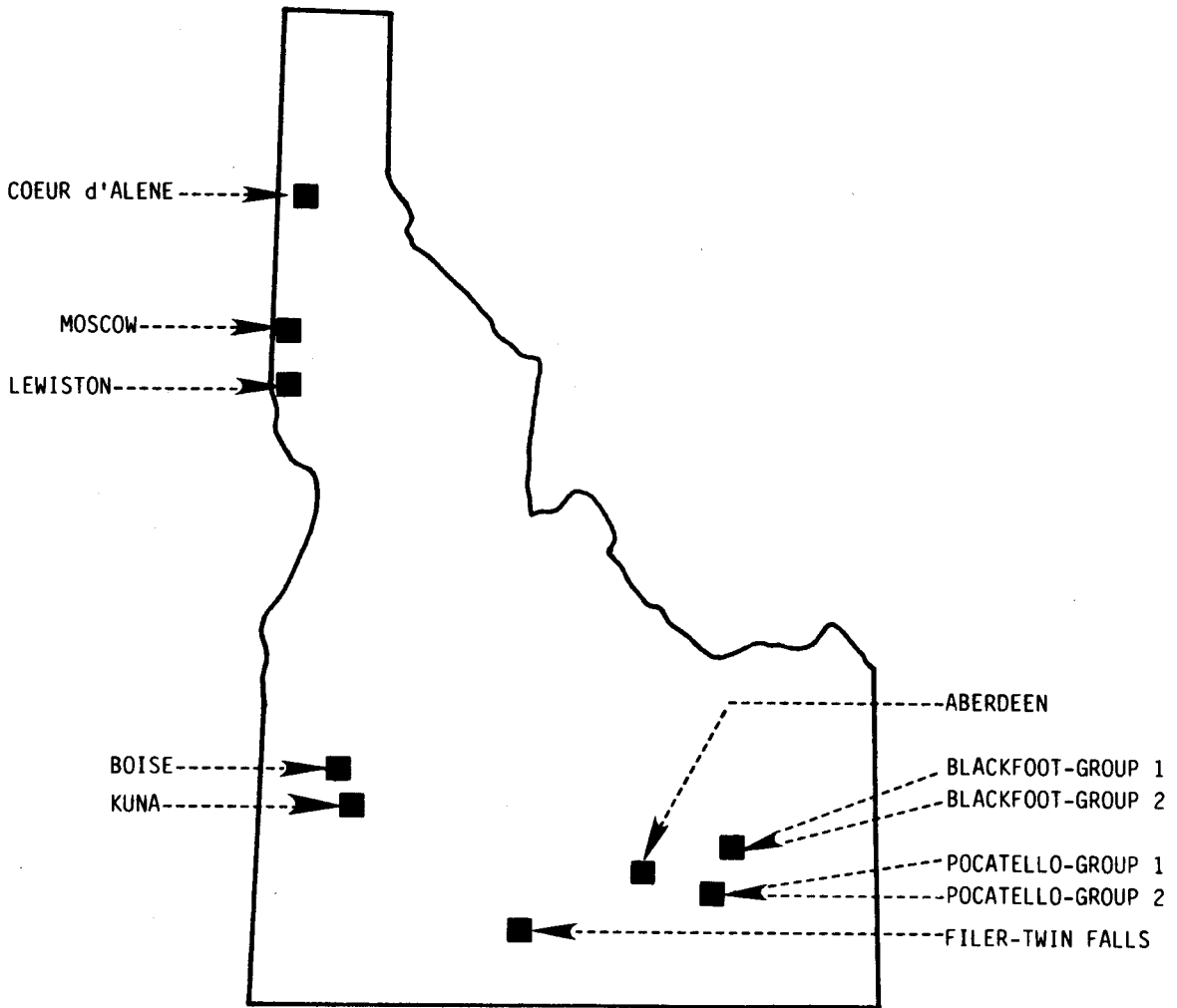


Figure 3. Map of participating districts by area.

APPENDIX F

LETTER OF INTRODUCTION

HILLCREST ELEMENTARY

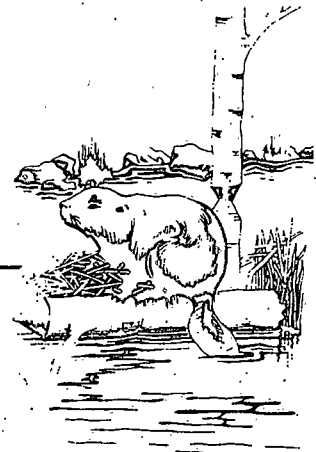
SCHOOL DISTRICT NO. 381

100 Bennett Ave.

American Falls, Idaho 83211

Ronald Bolinger
Principal

(208) 226-2391



August 21, 1987

Dear _____,

As we recently discussed on the phone, as an administrator in American Falls, I have been interested in the process of the science and art of teaching behaviors in the classroom. This has cultivated my interest in the Hunter Instructional Model as a tool to help teachers in the classroom, following receiving training from Dr. Hunter at UCLA in 1985.

As a result, I have chosen a study dealing with the Hunter Instructional Model as part of my doctoral graduate work at Montana State University, under the direction of Dr. Don Robson.

Specifically, the study deals with the effects the Hunter Instructional Model has on teachers' sense of efficacy. This social psychological construct is based on Albert Bandura's self-efficacy studies and deals with two dimensions: (1) **Sense of Teaching Efficacy**, which refers to teachers' expectations that teaching can influence student learning, and (2) **Sense of Personal Efficacy**, which refers to the teachers' assessment of their own teaching competence. Both dimensions make up the total sense of efficacy construct.

To measure teachers' sense of efficacy, I will be using the Teacher Efficacy Scale developed by Dr. Sherri Gibson (see enclosure), a 30-question Likert scale. The completion time for the instrument is 15 minutes or less.

As an educator involved in the training of the Hunter Instructional Model in our state, I am writing to enlist your support for the study by administering the Teacher Efficacy Scale to the teachers you are responsible for training, one before the training and a followup post-instruction measure. Five demographic questions will also be included.

Page Two
August 21, 1987

The research concerning the Hunter Instructional Model, especially as it deals with the effects on teachers, is very limited. Hopefully this study will add to the research.

I will be giving you a followup call within the next week to discuss the study further and answer any questions. I appreciate very much your time and assistance.

Sincerely,

Ronald Bolinger
Principal

RB/jlh

APPENDIX G

INTERACTION GRAPH OF MEAN OVERALL EFFICIENCY
CHANGE SCORES FOR YEARS OF EXPERIENCE
AND GRADE LEVEL TAUGHT

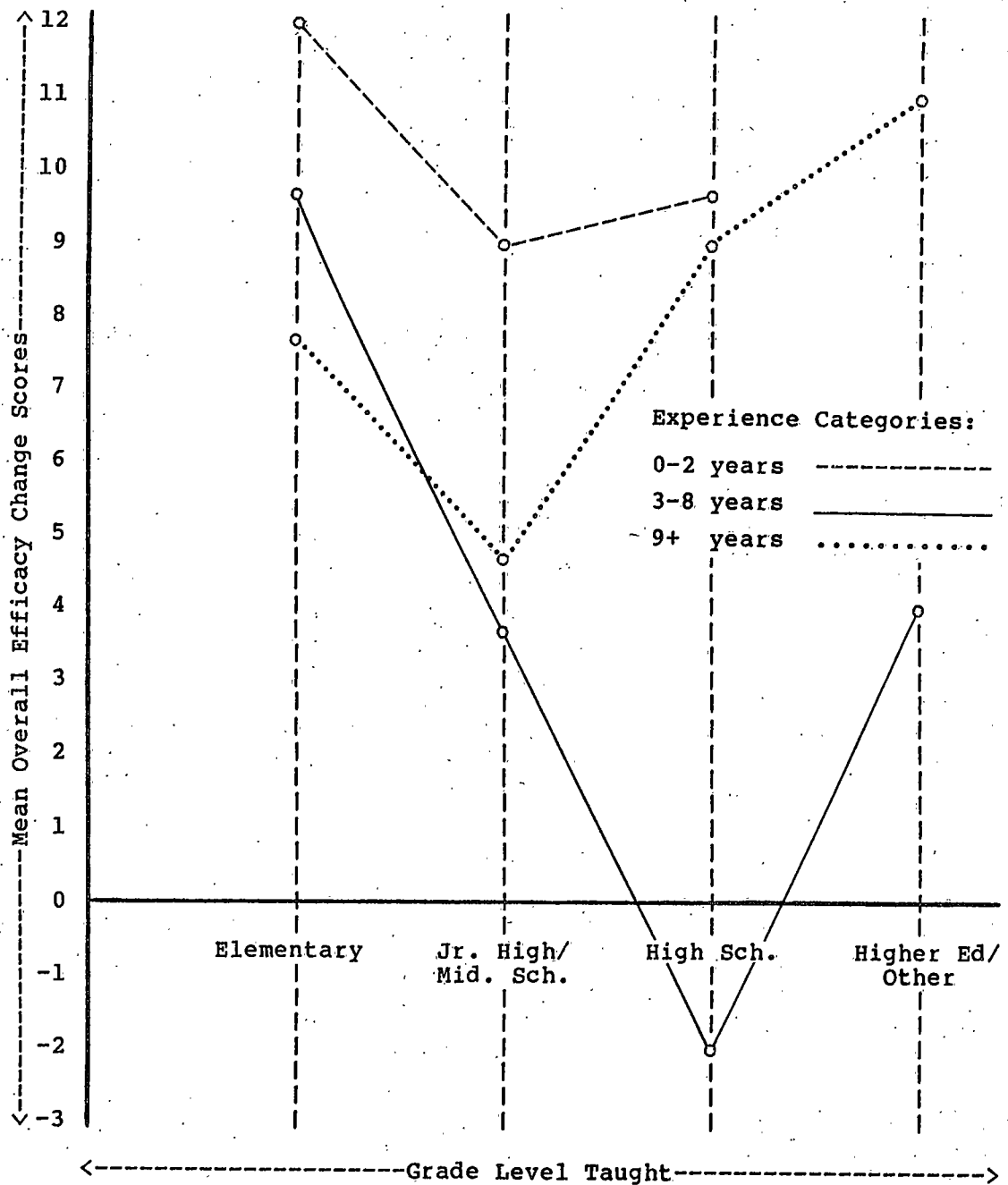


Figure 4. Interaction graph of mean Overall Efficacy change scores for years of experience and grade level taught.

APPENDIX H

INTERACTION GRAPH OF MEAN PERSONAL EFFICIENCY
CHANGE SCORES FOR YEARS OF EXPERIENCE
AND GRADE LEVEL TAUGHT

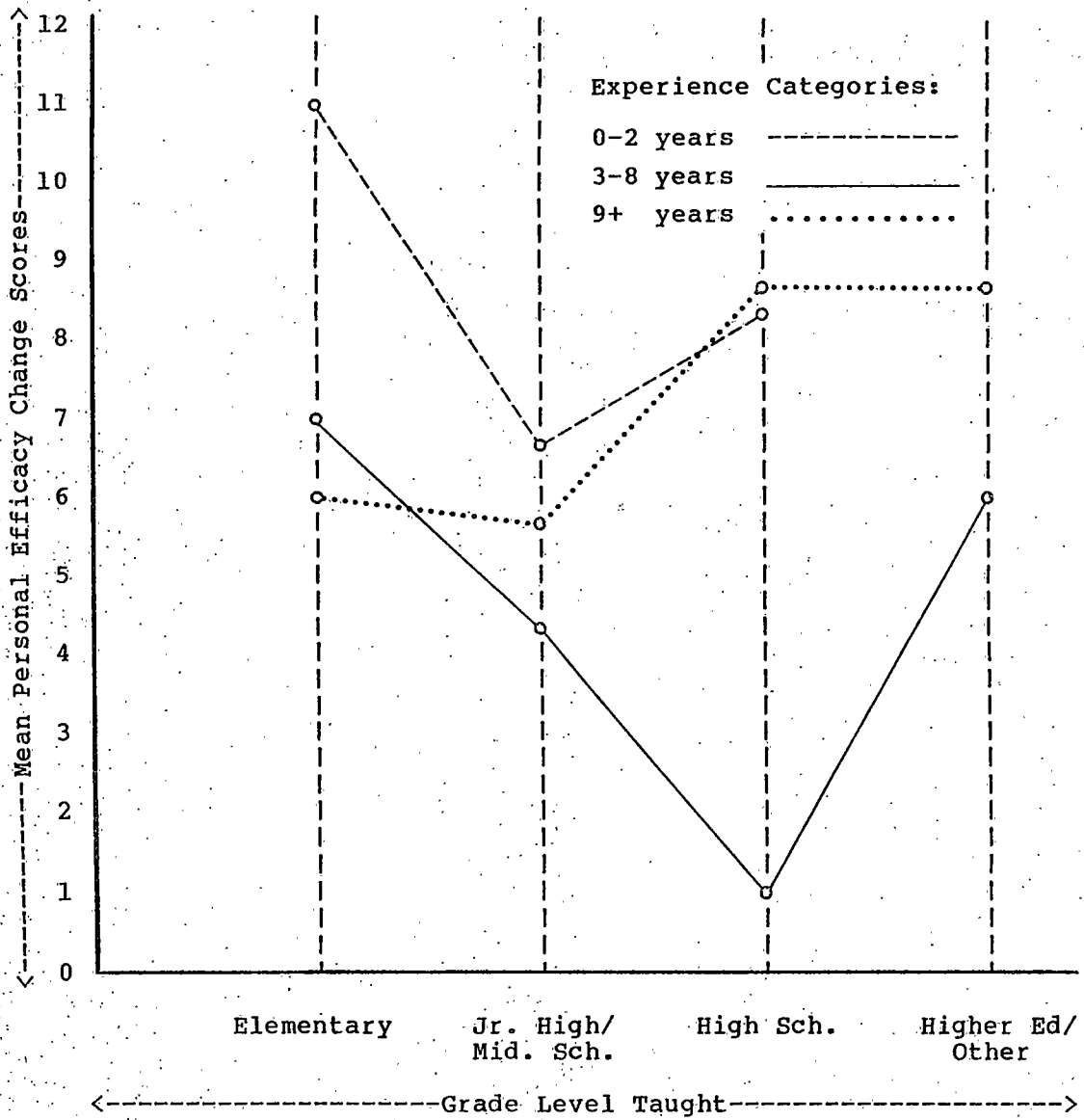


Figure 5. Interaction graph of mean Personal Efficacy change scores for years of experience and grade level taught.

APPENDIX I

PERSONAL EFFICACY CHANGE SUMMARY BY DISTRICT

Table 45. Personal Efficacy change summary by district.

District	Mean Before Instruction	Mean After Instruction	Total Change	Per- cent
Aberdeen	41.8000	45.8000	4.0000	10
Blackfoot--Group 1	41.9677	48.9344	6.9667	17
Blackfoot--Group 2	41.6000	47.3143	5.7143	14
Boise	45.5333	48.6047	5.0714	12
Coeur d'Alene	42.9167	51.6945	8.7778	20
Kuna	40.9167	49.5531	8.6364	21
Lewiston	41.9375	49.8661	7.9286	19
Moscow	41.8095	47.1779	5.3684	13
Pocatello--Group 1	39.4348	48.8032	9.3684	24
Pocatello--Group 2	42.5833	48.0000	5.4167	13
Filer-Twin Falls	39.6667	46.8334	7.1667	18

Total Mean Scores	41.5282	48.4165	6.7650	16

Highest possible mean score..... 54
 Lowest possible mean score..... 9
 Percent of pre-test mean of possible mean score..... 79%
 Percent of post-test mean of highest possible
 mean score..... 90%

APPENDIX J

TEACHING EFFICACY CHANGE SUMMARY BY DISTRICT

Table 46. Teaching Efficacy change summary by district.

District	Mean Before Instruction	Mean After Instruction	Total Change	Per- cent
Aberdeen	22.0000	22.8000	.8000	4
Blackfoot--Group 1	27.0968	26.1936	-.9032	-3
Blackfoot--Group 2	24.7241	27.3448	2.6207	11
Boise	26.6000	27.8000	1.2000	5
Coeur d'Alene	29.5333	30.3025	.7692	3
Kuna	26.4167	29.9167	3.5000	13
Lewiston	24.5000	27.2857	2.7857	11
Moscow	27.9000	27.3444	-.5556	-2
Pocatello--Group 1	26.8333	27.9386	1.1053	4
Pocatello--Group 2	25.0714	24.1483	-.9231	-3
Filer-Twin Falls	25.1667	24.5000	-.6667	-2
<hr/>				
Total Mean Scores	25.9857	26.8704	.8848	3
<hr/>				
Highest possible mean score.....				42
Lowest possible mean score.....				7
Percent of pre-test mean of possible mean score.....				63%
Percent of post-test mean of highest possible mean score.....				62%

APPENDIX K

OVERALL EFFICACY CHANGE SUMMARY BY DISTRICT

Table 47. Overall Efficacy change summary by district.

District	Mean Before Instruction	Mean After Instruction	Total Change	Per- cent
Aberdeen	63.8000	68.6000	4.8000	8
Blackfoot--Group 1	69.0645	74.9000	5.8355	8
Blackfoot--Group 2	66.2069	74.8571	8.6502	13
Boise	70.1333	75.4286	4.2953	6
Coeur d'Alene	73.5000	80.6000	7.1000	10
Kuna	67.3333	79.1000	11.7667	17
Lewiston	66.4375	77.4286	10.9911	17
Moscow	69.6000	73.7368	4.1368	6
Pocatello--Group 1	66.6757	76.0000	9.3043	14
Pocatello--Group 2	67.5833	72.6875	5.1042	8
Filer-Twin Falls	64.8333	71.6500	6.8167	11

Total Mean Scores	67.8187	75.3650	7.5463	11

Highest possible mean score..... 96
Lowest possible mean score..... 16
Percent of pre-test mean of possible mean score..... 70%
Percent of post-test mean of highest possible
mean score..... 79%

APPENDIX L

T-TEST SUMMARY FOR SIGNIFICANCE OF
PRE-TEST/POST-TEST MEAN CHANGE
SCORES FOR ALL CASES

Table 48. T-test summary for significance of pre-test/
post-test mean change scores for all cases.

Variable	N	Mean	Std. Dev.	Dif. Mean	Std. Dev.	T- Value	Prob.
Personal Efficacy:							
Pre-test	179	41.4469	5.229	-6.8101	4.865	-18.73	.000
Post-test		48.2570	5.497				

Teacher Efficacy:							
Pre-test	185	26.2757	5.549	-0.7622	5.367	-1.93	.055
Post-test		27.0378	5.470				

Overall Efficacy:							
Pre-test	173	67.7688	8.356	-7.5838	7.552	-13.21	.000
Post-test		75.3526	9.199				

APPENDIX M

AUTHOR'S PERMISSION TO QUOTE

COPYRIGHTED MATERIAL

PERMISSION TO QUOTE/REPRODUCE
COPYRIGHTED MATERIAL

I, Sherri Gibson, Ph.D., owner of the copyright to the work known as "The Teacher Efficacy Scale" (1983), a two-page, thirty-question instrument, hereby authorize Ronald Ray Bolinger to use the above-referenced material in its entirety as a part of his doctoral dissertation to be submitted to Montana State University.

I further extend this authorization to University Microfilms International, Ann Arbor, Michigan, for the purposes of reproducing and distributing microfilmed copies of the dissertation.

Sherri Gibson
(Signature)

5/16/88
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