



An investigation of interrelationships among mastery learning, climate, and expectancy motivation
by Anne Kruse Olson

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

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Abstract:

The problem of this study was to determine the interrelationships among attitude towards mastery learning, climate, and expectancy motivation among Montana elementary school teachers. Climate was studied in terms of principal-teacher, teacher-teacher, and teacher-student relations. Five multiple regression equations were used to analyze the interrelationships. Stepwise regression was used to build the most efficient model for each of the dependent variables. Hosier's double cross validation was used to test each of the models.

The study was conducted in the fall of 1987. The staffs of 27 Montana elementary schools were asked to complete the following instruments: Attitude Towards Mastery Learning Survey (ATML), Organizational Climate Description Questionnaire (OCDQ), Pupil Control Index (PCI), and Expectancy Motivation. Individual responses were analyzed for interrelationships.

Teachers who were positive towards mastery learning were more humanistic in pupil control orientation, more intrinsically motivated, and more positive in taking direction from the principal than teachers who were not as positive towards mastery learning. Teachers who perceived the climate more open as measured by the OCDQ, were more humanistic in their pupil control orientation, and more extrinsically motivated than those who perceived the climate as closed. Teachers who were more humanistic in their pupil control orientation scored positively on thrust (a measure of principal-teacher relations), attitude towards mastery learning, lower on hindrance (a measure of principal-teacher relations), and higher on extrinsic expectancy motivation. Teachers who were more intrinsically motivated also scored positively on attitude towards mastery learning. Teachers who were more extrinsically motivated perceived climate as more open than those teachers who were intrinsically motivated.

Each of the models was statistically significant at $\alpha = .05$ when applying Hosier's technique of double cross validation except for the dependent variable of extrinsic expectancy motivation which had inconsistent results.

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Anne Kruse Olson

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

of

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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.

May 11, 1988 Ronald L. Robson
Date Chairperson, Graduate Committee

Approved for the Major Department

May 11, 1988 Ronald L. Robson
Date Head, Major Department

Approved for the College of Graduate Studies

May 25, 1988 Henry J. Parsons
Date Graduate Dean

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TABLE OF CONTENTS

	Page
APPROVAL.....	ii
STATEMENT OF PERMISSION TO USE.....	iii
ACKNOWLEDGEMENTS.....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES.....	vii
ABSTRACT.....	ix
CHAPTER:	
1. INTRODUCTION.....	1
Introduction.....	1
Mastery Learning.....	2
Climate.....	3
Expectancy Motivation.....	4
Problem Statement.....	7
Need for the Study.....	7
General Questions To Be Answered.....	9
General Procedures.....	11
Limitations and Delimitations.....	13
Definition of Terms.....	13
2. REVIEW OF LITERATURE.....	17
Introduction.....	17
Mastery Learning.....	17
Development.....	17
Mastery Learning and Personalized Systems of Instruction.....	20
Effectiveness of Mastery Learning.....	22
Teacher Effects.....	26
Climate.....	30
Concept.....	30
Organization Climate Description Questionnaire.....	31
Pupil Control Ideology	34

TABLE OF CONTENTS--Continued

	Page
Expectancy Motivation.....	36
3. PROCEDURES.....	41
Introduction.....	41
Population Description and Sampling Procedure.....	42
Description of Categories.....	45
Method of Data Collection.....	50
Method for Organizing Data.....	58
Statistical Hypotheses.....	58
Analysis of Data.....	61
Precautions Taken for Accuracy.....	64
4. FINDINGS AND INTERPRETATION.....	65
Introduction.....	65
Descriptive Statistics.....	66
Hypothesis 1.....	67
Hypothesis 2.....	69
Hypothesis 3.....	72
Hypothesis 4.....	75
Hypothesis 5.....	77
5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	80
Summary.....	80
Conclusions.....	81
Recommendations.....	87
REFERENCES CITED.....	90
APPENDICES:	
A. ATML Questionnaire.....	102
B. OCDQ Questionnaire.....	106
C. PCI Questionnaire.....	114
D. Expectancy Motivation Questionnaire.....	118
E. Directions to Staff.....	121

LIST OF TABLES

Table	Page
1. The OCDQ Subscales.....	47
2. Estimates of Internal Consistency of the OCDQ.....	53
3. Independent and Dependent Variables for Regression Analysis.....	63
4. Descriptive Statistics for OCDQ Subscales, ATML, PCI, and Expectancy Motivation.....	66
5. Multiple Regression ANOVA with ATML as the Dependent Variable.....	68
6. Parameter Estimates for Dependent Variable ATML.....	68
7. Summary of Stepwise Regression for Dependent Variable ATML.....	69
8. Multiple Regression ANOVA with OPEN as the Dependent Variable.....	70
9. Parameter Estimates for Dependent Variable OPEN.....	71
10. Summary of Stepwise Regression for Dependent Variable OPEN.....	72
11. Multiple Regression ANOVA with PCI as the Dependent Variable.....	73
12. Parameter Estimates for Dependent Variable PCI.....	73
13. Summary of Stepwise Regression for Dependent Variable PCI.....	74
14. Multiple Regression ANOVA with EMII as the Dependent Variable.....	76

LIST OF TABLES--Continued

Table	Page
15. Parameter Estimates for Dependent Variable EMII.....	76
16. Summary of Stepwise Regression for Dependent Variable EMII.....	77
17. Multiple Regression ANOVA with EMIE as the Dependent Variable.....	78
18. Parameter Estimates for Dependent Variable EMIE.....	79
19. Summary of Stepwise Regression for Dependent Variable EMIE.....	79

ABSTRACT

The problem of this study was to determine the interrelationships among attitude towards mastery learning, climate, and expectancy motivation among Montana elementary school teachers. Climate was studied in terms of principal-teacher, teacher-teacher, and teacher-student relations. Five multiple regression equations were used to analyze the interrelationships. Stepwise regression was used to build the most efficient model for each of the dependent variables. Mosier's double cross validation was used to test each of the models.

The study was conducted in the fall of 1987. The staffs of 27 Montana elementary schools were asked to complete the following instruments: Attitude Towards Mastery Learning Survey (ATML), Organizational Climate Description Questionnaire (OCDQ), Pupil Control Index (PCI), and Expectancy Motivation. Individual responses were analyzed for interrelationships.

Teachers who were positive towards mastery learning were more humanistic in pupil control orientation, more intrinsically motivated, and more positive in taking direction from the principal than teachers who were not as positive towards mastery learning. Teachers who perceived the climate more open as measured by the OCDQ, were more humanistic in their pupil control orientation, and more extrinsically motivated than those who perceived the climate as closed. Teachers who were more humanistic in their pupil control orientation scored positively on thrust (a measure of principal-teacher relations), attitude towards mastery learning, lower on hindrance (a measure of principal-teacher relations), and higher on extrinsic expectancy motivation. Teachers who were more intrinsically motivated also scored positively on attitude towards mastery learning. Teachers who were more extrinsically motivated perceived climate as more open than those teachers who were intrinsically motivated.

Each of the models was statistically significant at $\alpha = .05$ when applying Mosier's technique of double cross validation except for the dependent variable of extrinsic expectancy motivation which had inconsistent results.

CHAPTER 1

INTRODUCTION

Introduction

The effective school research base identifies practices and characteristics that are associated with measureable improvements in student achievement and excellence in student behavior. Effective schooling practices include elements associated with: 1) strong instructional leadership, 2) positive interactions between teachers and students, and 3) teachers who continually strive to improve instructional effectiveness (Northwest Regional Educational Laboratory, 1986).

Some schools have introduced instructional strategies through inservice programs in order to become more effective. One such strategy, mastery learning, has been implemented in schools as a means to improve instruction. Mastery learning shares many of the elements of the effective school research including: 1) positive interactions between the teacher and students (Guskey, 1985a), and 2) teachers who are open to change to improve instructional effectiveness (Guskey, 1985b). This suggests that there might be a relationship among the selected

elements of climate and expectancy motivation from the effective school research and mastery learning.

Mastery Learning

The research on mastery learning showed positive changes in student achievement for various students throughout the range of different grade levels and subjects (Block & Burns, 1976; Chandler, 1982; Guskey & Gates, 1986). Student attitudes were also shown to be more positive for the mastery students than for the nonmastery students although the research is not as extensive as in the student achievement studies (Block & Burns, 1976; Guskey & Gates, 1986).

The teacher variable in mastery learning is the focus of continuing research. Okey (1977) concluded that teachers who were trained in mastery learning techniques exhibited improved attitude towards the roles of testing, grading, and diagnosis in their teaching. In a study conducted by Guskey in 1982, teachers who received training in mastery learning experienced a change in their expectations of students. These teachers expected more students to achieve than before the mastery training.

Guskey (1984) studied the teacher variable in mastery learning. His sample consisted of 117 volunteer intermediate and high school teachers who were receiving training in mastery learning. Those teachers whose

students experienced a growth in achievement through the implementation of the mastery learning techniques expressed an increase in their responsibility for student learning and an increase in their affect toward teaching.

The latest study by Guskey (1987c) tied the research on effective teacher attitudes in effective schools to the practices of mastery learning teachers. Effective teachers believe that they can help all students, and they are positive in their feelings about teaching (Berman & McLaughlin, 1977; Brandt, 1986). Teachers who were categorized as effective tended to rate mastery learning as important, congruent with present teaching practices, and easier to implement than did their less effective colleagues.

Climate

Synonyms for climate include atmosphere, feel, tone, culture, or setting. Halpin (1966) wrote of the "personality" of each school. Climate in a school can be thought of as the qualities of the school which affect how people feel and learn. Anderson, (1982, p. 368) wrote that "school climate research is clearly the stepchild of both organizational climate research and school effects research." Gilmer (1966, p. 57) described organizational climate as

. . . those characteristics that distinguish the organization from other organizations and that influence the behavior of people in the organization. It is, in effect, what we react to. . . .

School climate is difficult to conceptualize and measure. Argyris (1958) concluded that school climate, like other constructs of human behavior, involves ordering and conceptualizing mutually interacting variables.

Tagiuri (1968, p. 22) wrote that organizational climate is

. . . a relatively enduring quality of the internal environment of an organization that 1) is experienced by its members, 2) influences their behavior, and 3) can be described in terms of values of a particular set of characteristics (or attributes) of the organization.

Most measures of school climate focus on particular aspects of the organization and only some of the dimensions are delineated by any given instrument. This study considered three dimensions: principal-teacher relations, teacher-teacher relations, and teacher-student relations.

Expectancy Motivation

Teacher expectation for student achievement is gaining support as an important factor in the motivation for high achievement. Anderson (1982) reported that the level of expectation teachers and administrators hold for each other, and especially for students, is the attitude most frequently associated with climate and student outcomes. Anderson concluded that staff in high achieving schools

consistently "manifest attitudes of confidence that students will be able to succeed academically" (1982, p. 403).

The work of Rosenthal and Jacobson (1968) brought attention to the idea that a positive relationship exists between teacher expectations and student achievement. Their work was criticized on methodology and the lack of a theoretical foundation. Since then, however, the effective school research has found a number of studies that conclude that expectancy affects student achievement (Braun, 1976; Brookover & Lezotte, 1979; Brophy & Evertson, 1976; Dusek, 1975; Edmonds & Frederiksen, 1978; Good, 1979; MacKenzie, 1983; Phi Delta Kappa, 1980; Rosenshine, 1983).

Vroom's (1964) work on expectancy theory provided the model for Miskel, Bloom, and McDonald (1981) in the development of their instrument for measuring teacher expectancy motivation within schools. Vroom (1964) described expectancy, valence, and instrumentality as essential concepts in motivation. Expectancy is the belief that an individual's own efforts will lead to successful performance. Valence is the degree of desirability or attractiveness that an individual attaches to a reward. High valence means that the reward is attractive to the individual. Rewards such as satisfaction for task achievement (high student performance) and esteem from

students are rewards that conceivably hold high valence for teachers. Corbett (1982, p. 191) stated, "Because of teacher isolation, students have been shown to be particularly important sources of incentives for teachers." Instrumentality is the belief that a given performance will lead to attaining the rewards (Vroom, 1964; Hoy & Miskel, 1982). Vroom's model is that the propensity to start and maintain behavior is the product of expectancy, valence, and instrumentality.

The following is an example of the model. A teacher will have a strong force of motivation to pursue improved instruction if the teacher: (1) believes that a strong personal effort will positively influence student achievement, (2) feels personally rewarded by good performance on the part of the students, and (3) believes that he/she is capable of the instructional performance required to produce the desired level of student achievement (Mulhern, 1984). Other studies have confirmed that when people believe events are beyond their control, regardless of their level of effort, their effort persistence declines and anxiety increases (Thornton & Jacobs, 1971; Klein & Seligman, 1976).

This concept of motivation to pursue an objective was described by Miskel et al. (1981) as expectancy motivation. Their selection of items to portray expectancy focused on

the attainment of educational objectives on student achievement.

Mulhern (1984), in a study of New Jersey high schools, found that schools with more open climates appeared to have teachers who had a higher expectancy motivation ($p < .0006$). He also found that secondary teachers with a more humanistic pupil control ideology had a higher expectancy motivation ($p < .0006$).

Problem Statement

The problem of this study was to determine the interrelationships among elementary teachers' attitude towards mastery learning and selected elements of effective school practices.

The selected effective school elements included climate and expectancy motivation. Climate was studied in terms of teacher-principal relations, teacher-teacher relations, and teacher-student relations.

Need for the Study

In reviewing literature on outcome-based instruction, Spady (1981) noted that no research was cited in the area of mastery learning and climate and that research was needed. Guskey and Gates (1986), in a meta-analysis of mastery learning research from 1976-1986, concluded that

more studies were needed on classroom climate, teacher-student interactions, and the changing teacher role from that of judge to a learning facilitator who works for student successes. Oslund (1985) concurred with Guskey and Gates by suggesting more studies on the relationship between student successes and the changes in teachers' attitudes and beliefs. This study adds to the knowledge base on the interrelationships among mastery learning and the effective school research elements of climate and expectancy motivation.

Mann (1978, p. 3) stated that "more than ever, those who seek to change schools must change teachers while they are working in the schools." Rogers and Shoemaker (1971, p. 11) wrote that "the aggregation of a multitude of individual changes produces a system-level alteration." The implementation strategy of the mastery learning training utilized in this study was to train volunteer classroom teachers in order to establish a critical mass of teachers skilled in mastery learning techniques who would then train other teachers. If one accepts the assumptions that teachers are the unit of change and that individual change can produce a system level change, then the training of teachers in mastery learning could create a critical mass of teachers that would produce a system-level change. This study helps to establish a link between implementation

of teacher training in mastery learning and the selected elements of effective schools.

The studies on the teacher effects from mastery learning have been done immediately after initial training or after a half-day staff development program. None of the studies done by Okey (1977) or Guskey (1982, 1984, 1985b, 1987c) included teachers who had implemented mastery learning strategies for periods of more than one year. Thus, this study adds to the research on the effects of mastery learning training of more than one year rather than a one time initial exposure to the teaching strategy.

General Questions to Be Answered

The following general questions were addressed:

1) How much of the variability of attitude toward mastery learning can be accounted for by principal-teacher and teacher-teacher relations, teacher-student relations, and intrinsic and extrinsic expectancy motivation? How much does each of the variables of principal-teacher and teacher-teacher relations, teacher-student relations, and intrinsic and extrinsic expectancy motivation contribute individually to the variance of attitude towards mastery learning? What is the most efficient way to explain the variability of attitude toward mastery learning?

2) How much of the variability of principal-teacher and teacher-teacher relations can be accounted for by measures of teacher-student relations, intrinsic and extrinsic expectancy motivation, and attitude towards mastery learning? How much does each of the variables of teacher-student relations, intrinsic and extrinsic expectancy motivation, and attitude toward mastery learning contribute individually to the variance of principal-teacher and teacher-teacher relations? What is the most efficient way to explain the variability of principal-teacher and teacher-teacher relations?

3) How much of the variability of the teacher-student relations can be accounted for by intrinsic and extrinsic expectancy motivation, attitude toward mastery learning, and principal-teacher and teacher-teacher relations? How much does each of the variables of intrinsic and extrinsic expectancy motivation, attitude toward mastery learning, and principal-teacher and teacher-teacher relations contribute individually to the variance of teacher-student relations? What is the most efficient way to explain the variability of teacher-teacher relations?

4) How much of the variability of intrinsic expectancy motivation can be accounted for by attitude toward mastery learning, principal-teacher and

teacher-teacher relations, and teacher-student relations? How much does each of the variables of attitude toward mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations contribute individually to the variance of intrinsic expectancy motivation? What is the most efficient way to explain the variability of intrinsic expectancy motivation?

5) How much of the variability of extrinsic expectancy motivation can be accounted for by measures of attitude toward mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations? How much does each of the variables of attitude toward mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations contribute individually to the variance of extrinsic expectancy motivation? What is the most efficient way to explain the variability of extrinsic expectancy motivation?

General Procedures

The study was conducted in five school districts in Montana. The districts were selected on two criteria: 1) the district must have offered a five credit extension class from Montana State University (MSU) on mastery learning to their elementary teachers, and 2) the

superintendent of the district had to grant permission for the district to participate in the study.

Teachers who participated in the extension class had been given guided practice, individualized and small group instruction, and feedback in the implementation of mastery learning for a school year. The teachers who were trained in mastery learning were assigned to implement the teaching strategy in one class for the year.

The researcher traveled to each of the school districts to obtain permission from the superintendents to meet with principals and conduct the research. Faculty meetings, or in some schools at the discretion of the principal, small group meetings, were used to distribute and collect the completed instruments during the last week of September and the first two weeks of October, 1987. Assistants distributed the data collection instruments as teachers entered the room. The data collection instrument was a booklet comprised of the Attitude Towards Mastery Learning (ATML), Organizational Climate Description Questionnaire (OCDQ), Pupil Control Index (PCI), and Expectancy Motivation instruments. The instruments were collected after the meeting. To the extent possible, data were obtained from all teachers in the selected schools. A sample of 400 was sought. Individual results were confidential.

Data were checked for accuracy from the computer printout before analysis. Five multiple regression equations were analyzed. Each of the five variables was analyzed as the dependent variable. If significant relationships were found, Moser double cross validation techniques were used to strengthen the interpretation. A stepwise regression was utilized to determine which variables account for the variation in the dependent variable.

Limitations and Delimitations

The limitation of the study was that the only curricular change considered was the implementation of mastery learning.

The following were the delimitations of the study:

- 1) The study was conducted during the 1987-1988 school year.
- 2) School districts had to have mastery learning paradigm implementation for at least one academic year.

Definition of Terms

Inservice education was defined as "all activities carried out by the district or school to promote staff growth and renewal" (Rogus, 1983, p. 9).

Mastery learning was defined as a teaching-learning paradigm in which material is divided into units of one to two weeks in length. Formative tasks were utilized to assess and diagnose student progress. Feedback and correctives were designed from the formative tests. Summative tasks were used for grading purposes (Guskey, 1985a).

The attitude towards mastery learning was measured by the Attitude Towards Mastery Learning (ATML), an instrument of 32 items regarding a teacher's attitude towards mastery learning (see Appendix A). Attitude Toward Mastery Learning is the original ATML by Okey (1977) with one additional item on summative testing as recommended by Casagrande (1987).

Organizational climate was "the set of internal characteristics that distinguish one school from another and influences the behavior of people in it" (Hoy & Miskel, 1982, p. 185). It was measured by the Organizational Climate Description Questionnaire (OCDQ). The OCDQ measured eight dimensions of school climate which can be divided into two subtests: one subtest for teacher-teacher relations, and one subtest for principal-teacher relations. (The OCDQ instrument is in Appendix B.)

The openness index score (OPEN) is derived from the subscale scores from the OCDQ. OPEN is equal to the sum of thrust and esprit scores minus the disengagement score.

Pupil control was defined as how school staff view the students or, more precisely, the dominant pattern that teachers and principals use to control students. The Pupil-Control Ideology (PCI) was used to measure pupil control. (See Appendix C.)

Teacher-student relations was defined as the interactions between the teacher and the students and was measured by the PCI in terms of a teacher's orientation toward humanistic or custodial control of students.

Principal-teacher relations was defined as the interaction between the principal and the teachers of that school. It was measured by the subscale of the OCDQ which includes the subtests of production emphasis, aloofness, consideration, and thrust.

Teacher-teacher relations was defined as the interactions among the faculty of a school and was measured by a subscale of the OCDQ which includes the subtests of hindrance, intimacy, disengagement, and esprit.

Expectancy motivation was defined as the motivation to pursue educational objectives on student achievement. The operational definition of expectancy motivation was the product of expectancy, instrumentality, and valence as

measured by the Expectancy Motivation Instrument (see Appendix D).

Intrinsic expectancy motivation (EMII) is from within the individual. An example is an individual's belief that one has used one's abilities to the fullest.

Extrinsic expectancy motivation (EMIE) is tied to the rewards from the organization, such as recognition or money. The distinction between intrinsic and extrinsic expectancy motivation is meant to differentiate between the rewards that are under the direct control of the individual and those that are not.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

The review of literature concentrates on the research in the following major areas: 1) mastery learning, 2) climate, and 3) expectancy motivation. Background for each of these topics is necessary before one can consider the interrelationships among them.

Mastery LearningDevelopment

Underlying mastery learning is an explicit philosophy about learning and teaching (Block & Anderson, 1975). This philosophy asserts that under appropriate instructional conditions virtually all students can learn well, that is "master" most of what they are taught. Mastery learning proposes that teachers can teach so that all students do learn well (Block & Burns, 1976).

The philosophy that all can learn and learn well has historical roots in the works of Comenius, Pestalozzi, Herbart and contemporary figures such as Washburne and Morrison (Torshen, 1977). Cronbach (1972) found the same

idea in the writings of the English Enlightenment philosopher John Locke.

Torshen (1977) noted that the foundation for mastery learning was laid by J. Franklin Bobbit, Ralph Tyler, Robert Meager, and others beginning in the 1960s with their ideas on teaching to performance objectives and improving instruction in the classroom. Carroll (1963, p. 727) put forth the idea that aptitude was a function of time and that schools might not allow adequate time for students to learn a task when he stated:

It may come as a surprise to some to be told that the school may allow less than adequate time for learning any task, but second thought will make one realize that this is very often the case.

Carroll (1963) advocated that all schools look at aptitude as a function of time. Carroll proposed that if each student was allowed the time needed to learn the subject to some criterion level, and if the student spent the necessary time to do this, then the student would attain that level. In summary, Carroll's model stated that the degree of learning of a given subject depended on the student's opportunity to learn, relative to his aptitude for the subject, the quality of the instruction and the student's ability to understand the instruction (Block & Burns, 1976). With time as a variable rather than a constant, more students would accomplish a task. The

school should give all students an opportunity to learn (time), and students should receive quality instruction.

In 1968, Bloom built on Carroll's ideas and knowledge about one-to-one tutoring. Bloom focused on the variables that the teacher could control, the opportunity to learn and the quality of instruction. Bloom concluded that if each student received differential opportunity to learn and differential quality of instruction, then as many as 95 percent of the students could attain mastery and the individual differences in student aptitude would have little bearing on the students' achievement (Block & Burns, 1976). In his book, Human Characteristics and School Learning, Bloom (1976, p. 212) described the major thesis of his Learning for Mastery model as:

A system of feedback to the teacher and student can reveal errors in learning shortly after they occur, and if appropriate corrections are introduced as they are needed, the educational system can be a self-correcting system so that errors made at one time can be corrected before they are compounded with later errors.

There have been additions and modifications to Bloom's model. Guskey (1987b) summarized the essential characteristics of mastery learning as feedback and correctives, and congruence among the instructional components. In the teaching and learning process, there are four major components: 1) learning objectives, 2) instruction, 3) feedback and correctives, and

4) competent learners. The feedback is essential in that it must be both diagnostic and prescriptive for what needs to be learned. The correctives must approach learning in a way different from the initial instruction. The students must participate in the correctives in order to be directly involved in the learning. Enrichment activities are used to broaden and expand the learning if mastery was obtained from the initial instruction.

The congruence among the instructional components means that there must be agreement among the learning objectives, the instruction, and the testing of what has been learned. In other words, the test must match the basis for the learning, the learning objectives, and how these learning objectives were taught. If the learning objectives were taught on the knowledge level, then the test should be on the knowledge level.

Mastery Learning and Personalized Systems of Instruction

Two instructional strategies have attempted to put into practice the philosophy that all students can learn. One of these practices, Bloom's (1968) Learning for Mastery (LFM), has been used primarily by elementary and secondary educators. The other practice, Keller's 1968 Personalized System of Instruction (PSI), evolved from the study of

psychology and has been utilized by college and university educators (Block & Burns, 1976).

The Personalized System of Instruction (PSI) model is an individually based, student-paced approach to instruction in which students usually learn independently of their classmates. The feedback is provided by people, usually student proctors. Typically, students work at their own pace and move on to new material when they demonstrate mastery of a unit. If they do not pass the unit test, the original instructional unit is repeated until mastery is demonstrated. The unit test can be retaken a number of times without penalty. Grading is usually based on the number of units completed.

The teacher's role in a PSI classroom is one of individual assistance. Occasional class presentations are used for motivation rather than sources of necessary information. Carefully designed, self-instructional materials are essential to a successful PSI program (Kulik, Kulik, & Cohen, 1979; Thompson, 1980).

The mastery learning model is typically a group-based, teacher-paced approach to instruction in which students usually learn with their classmates (Guskey, 1985a). The model can be adapted to an individually based, student-paced format. In the mastery learning classroom, the pace of the original instruction is set by the teacher.

The role of the teacher is that of a facilitator in the learning process (Guskey, 1985b). The teacher specifies the learning objectives for each unit which usually last two weeks or less. In addition, the teacher sets a criteria level for mastery, usually 80 percent. Nongraded formative tests are given during the unit to diagnose areas of weakness. If mastery is not achieved on the formative test, remediation with correctives that are different from the original instruction is used before a formative test is taken again. The formative tests are used to diagnose areas of weakness (feedback) and to prescribe correctives. Enrichment activities are used if mastery is achieved with the initial instruction. Grading is accomplished by the use of a summative test.

Effectiveness of Mastery Learning

In their 1976 summary of research on mastery learning, Block and Burns divided the studies into four types to answer the following questions: 1) Does mastery learning work? 2) If mastery learning works, what are the side effects for the students? 3) Do the different components of mastery learning affect students differently? and 4) How does mastery learning work?

Block and Burns, in addressing the effectiveness of mastery learning, concluded that mastery-taught students exhibited greater learning than their nonmastery-taught

counterparts. In 97 comparisons of average achievement test scores, comparisons involving various types and numbers of students and various subject matter areas, mastery-taught students scored higher than nonmastery-taught students 89 percent of the time, and significantly higher 61 percent of the time ($p < .05$). Average retention test scores in 27 comparisons showed the mastery-taught students scored significantly higher 63 percent of the time than the nonmastery-taught students ($p < .05$).

Block and Burns (1976) concluded that mastery learning strategies had a positive impact on students' interest in and attitudes toward the subject matter learned, self-concept (academic and more general), academic self-confidence, attitudes toward cooperative learning, and attitudes toward instruction. Some concern was expressed as to whether the favorable responses were attributable to the Hawthorne effect or were not permanent. The conclusion relative to student time cost was that mastery strategies might eventually help the slower student approach the learning rate of the faster student.

In examining the research on the different components of mastery learning, Block and Burns found that the unit mastery requirement consistently produced the strongest effects. Block and Burns hypothesized that the unit

requirement affected the quality and the quantity of student study time.

In 1982, Chandler found that of 97 studies comparing average achievement between mastery and nonmastery groups, 59 favored mastery. Three of the studies favored nonmastery and no statistically significant results were found for the remaining 35 studies. In another study, Chandler found that 48 of 61 groups indicated statistically significant average achievement results in favor of mastery-taught students. No study favored nonmastery. Chandler (1982, p. 10) concluded that "if a student is at the fiftieth percentile in the nonmastery group he could be expected to move to the eightieth percentile using a mastery approach."

Guskey and Gates (1986) used Glass meta-analysis techniques on all the mastery learning studies from 1975 through 1986. Twenty-seven studies were chosen based on the criteria of using Bloom's model, quantitative data, group-based/teacher paced instruction, and a good design. Guskey and Gates concluded that mastery learning increased student achievement and that there was a positive effect on student learning retention. This conclusion was based on the magnitude of the effect sizes computed in this meta-analysis. Only one study included measuring the affective domain; students liked the subject better.

Critics of Bloom's model said that it was too rigid and mechanistic (Groff, 1974; Jaynes, 1975). Other criticisms were that it was effective only with knowledge based information or simple skills (Cronbach, 1972), and that it did not work in the complex learning setting in schools (Bowen, 1975). Opponents also disputed the return on the amount of time needed for student remediation and planning of units (Arlin, 1984; Slavin 1987). Slavin (1987) distinguished time from mastery learning techniques and stated that the mastery learning technique in itself does not produce significant results, although Slavin (p. 52) concluded:

The idea that students' specific learning deficits should be remediated immediately instead of being allowed to accumulate into large and general deficiencies makes a great deal of sense.

Proponents argued that the model is flexible and employs humanistic strategies (Levin, 1974), can be applied to complex skills (Levin, 1975), and that it can be applied in the classrooms (Block & Anderson, 1975). Numerous studies have supported the gains in achievement that resulted from mastery learning instruction (Arlin, 1984; Buckman & Brezin, 1981; Burns, 1979; Chandler, 1982; Covington & Omelick, 1984; Dillashaw & Okey, 1983; Guskey, 1982; Guskey & Gates, 1986; Okey, 1977; Wise & Okey, 1983).

Teacher Effects

In the review of mastery learning research done by Block and Burns in 1976, the questions of mastery learning implementation and mastery learning's effects on teachers were also considered. Block and Burns concluded that both inservice and preservice teachers could be trained to teach for mastery and that learning how to teach for mastery does not require the acquisition of a whole new set of skills. Learning to teach for mastery required the addition of a few new skills such as diagnostic testing to an "old" skill, for example, remediation. Teachers could apply the techniques in the classroom and were rewarded with gains in their students' achievement, especially if they had prior teaching experience.

In 1982, Guskey worked with a group of 44 volunteer intermediate and high school level teachers from two school systems. The teachers were trained in mastery learning techniques. Thirty-four of the 44 teachers were categorized as effective mastery learning teachers by two criteria: 1) the percentage of their students who received an A or a B, and 2) the average percent of correct responses that their students scored on the common course examination. Guskey concluded that as the teachers experienced a positive change in their effectiveness as measured by his two criteria, the relationship between

their initial expectations for performance and student achievement outcomes appeared to be reduced. That is, the teachers expected more students to achieve because of their teaching and more students did.

Guskey (1984) completed another study using a sample of 117 intermediate and high school teachers. He found that as teachers experienced a positive change in the learning outcomes of their students with mastery learning techniques, they expressed an increase in personal responsibility for student outcomes, and an increase in their positive feelings toward teaching. However, these mastery learning teachers also expressed a decrease in confidence in their teaching abilities. Guskey noted that this "humbling effect" correlated to a willingness to try new procedures and techniques. Guskey concluded that the teachers who utilized the mastery learning techniques realized that there was more to learn about teaching.

Guskey (1985b) continued to investigate teachers' effects from implementing mastery learning techniques. A questionnaire was designed to discern whether teachers explained their effectiveness more in terms of behavior or in terms of personality after implementing mastery learning. The questionnaire was scored on a continuum from "completely unimportant" (1) to "extremely important" (5). An example of a personality item as the reason for the

teacher's effectiveness stated, "Students find the teacher very kind and likeable." An item that was an example of the behavior as the reason for the teacher's effectiveness stated, "The teacher's instructional materials are well organized." The teachers who did not use mastery learning attached more importance to personality factors as characteristics responsible for effective teaching. These personality factors were perceived as difficult to change. The mastery learning teachers attached more importance to behavior factors and believed that these could be changed with training. Guskey concluded that teachers who used mastery learning techniques were more open to change than teachers who did not.

The meta-analysis of mastery learning studies done by Guskey and Gates in 1986 reinforced these findings. Teachers who used mastery learning were more open to change, began to feel better about teaching, and felt better in their roles as teachers. The mastery learning teachers felt more personal responsibility for their students' successes and failures, but less confident in their teaching abilities.

Guskey (1987c) conducted a study to see if there was a significant relationship between measures of teacher efficacy, teaching affect, and teaching self-concept; and teachers' attitudes regarding congruence, difficulty of

use, and importance of the recommended practices. Guskey surveyed 120 elementary and secondary teachers after a one-half day staff development program on mastery learning instructional strategies. The teachers surveyed represented an urban district, a suburban district, and a rural district. Guskey found that neither grade level nor years of experience were significant. He concluded that the more efficacious teachers, as measured by the Rand Corporation Change Agent Study and the Responsibility for Student Achievement Instrument (RSA), did tend to rate mastery learning as more important, more congruent with present teaching practices, and easier to implement than did their less efficacious colleagues.

In a study completed by the Far West Educational Laboratories (Guskey, 1987a), mastery learning schools and nonmastery learning schools were compared on climate measures. No significant differences were found between the mastery and nonmastery schools. A critical variable in this study was the definition of mastery learning. The definition used was not adequate and did not address the remediation and feedback according to Guskey (1987a). A second variable was that climate was viewed on a school-wide basis instead of using the perceptions of individual teachers.

ClimateConcept

Synonyms for climate include atmosphere, feel, tone, culture, or setting. Halpin (1966) wrote of the "personality" of each school. Climate in a school can be thought of as "the qualities of the school which affect how people feel and learn" (Lawrence, 1983, p. 3). Nwanko (1979, p. 268) wrote of a "general 'we-feeling' group sub-culture or interactive life of the school." Anderson, (1982, p. 368) wrote that "school climate research is clearly the stepchild of both organizational climate research and school effects research."

Gilmer (1966, p. 57) described organizational climate as:

. . . those characteristics that distinguish the organization from other organizations and that influence the behavior of people in the organization. It is, in effect, what we react to

Lewis (1983, p. 36) stated,

Organizational climate is almost like a barometer, indicating how employees feel about specific managerial practices. Employees may feel relaxed, or driven, uptight, and under suspicion. The climate consists of the interpersonal and environmental factors that shape behavior and motivation.

Tagiuri (1968, p. 22) wrote that organizational climate is:

. . . a relatively enduring quality of the internal environment of an organization that 1) is experienced by its members, 2) influences their behavior, and 3) can be described in terms of values of a particular set of characteristics (or attributes) of the organization.

Climate is difficult to conceptualize and measure.

Argyris (1958) concluded that school climate, like other constructs of human behavior, involves ordering and conceptualizing mutually interacting variables. Most measures of school climate focus on particular aspects of the organization and only some of the dimensions are delineated by any given instrument.

Organizational Climate Description Questionnaire

The early work on organizational climate was carried out in business organizations rather than schools (Schneider & Barlett, 1968). Halpin and Croft (1962) were among the first to develop an organizational climate instrument for research in schools.

The Organizational Climate Description Questionnaire (OCDQ) designed by Halpin and Croft (1962) focuses on two dimensions: teacher-principal relations and teacher-teacher relations. The OCDQ is composed of eight subtests; four of the subtests refer to the characteristics of the faculty group, and four describe components of teacher-principal relations.

The subtest for the principal-teacher relations includes the subscales: 1) production emphasis, 2) aloofness, 3) consideration, and 4) thrust. An "open" school has a high degree of thrust with a principal perceived as leading by example with the proper mix of consideration to fit the situation. A "closed" school is one where the principal makes all the decisions, and rules are set by the principal and never questioned (Hoy & Miskel, 1982).

The subtest for teacher-teacher relations contains the subscales of: 1) hindrance, 2) intimacy, 3) disengagement, and 4) esprit. The "open" school has teachers who accomplish their work with vigor and pleasure. The "closed" school has a high level of teachers not focused on a common task.

Halpin and Croft (1962) relied on Halpin's work with leader behavior in organizations. The rationale for focusing on the principal and teacher relations and the leadership behavior was stated by Halpin and Croft (1962, pp. 10-11):

In gathering material for the OCDQ items, one point struck us forcibly: that an essential determinant of a school's 'effectiveness' as an organization is the principal's ability, or his lack of ability, to create a 'climate' in which he, and other group members, can initiate and consummate acts of leadership. One of our guiding assumptions is that a 'desirable' Organizational Climate is one in which it is possible for leadership acts to emerge easily, from whatever source. If an organization is to accomplish its tasks, leadership acts must be

initiated. However, it should be noted that we do not assume that leadership acts need be confined exclusively to the designated leader, himself. Such acts can be initiated either by the leader or by members of the faculty. If the leader fails to provide sufficient leadership acts, and leadership acts of sufficient 'quality' in that they are 'accepted' and that they also lead to increased group 'effectiveness,' then members of the group will seek to offer the 'leadership' required to make the group 'effective.' In this view we have been supported by the central finding that pervades all research on leadership and group behavior: an 'effective' group must provide satisfaction to group members in two major respects; it must give a sense of task-accomplishment, and it must provide members with the social satisfaction that comes from being part of a group. This is simply a paraphrase of Chester Barnard's insistence that a group be both 'effective' and 'efficient.'

Even when we first began our research, one conclusion stood out forcibly: we would have to include in the OCDQ measures of the leader's behavior as well as measures of the group's behavior. From these two sets of measures we might then hope to identify which types of behavior by the leader are 'associated' with specific behaviors among the group members.

Hale (1966) found a correlation between the language art scores from the California Achievement Test of elementary school children with the scores of subtests of the OCDQ. In 1968, Miller found that an overall open climate, as measured by the eight subtests of the OCDQ, related to pupil achievement in 29 elementary schools in an urban school district.

However, the results on a correlation between open climate and high achievement are inconsistent (Rice, 1968). Hoy and Miskel (1982) wrote of the "cognitive fallacy."

In other words, an open climate will enhance a sound instructional program. If the instructional program is weak, an open climate cannot make a poor program good.

Studies that have examined the relationship between characteristics of the principal and climate have found that open schools, as compared to closed schools, have principals who are more confident, cheerful, sociable, and resourceful (Anderson, 1982). Teachers who work under principals in open schools express greater confidence in their own and the school's effectiveness (Andrews, 1965).

Research on student alienation found a correlation to the openness of a school's climate. A study of high schools by Hartley and Hoy (1972) found that the more open the school climate the less the sense of alienation by the students and professional personnel.

Pupil Control Ideology

The Pupil Control Ideology (PCI) focuses closely on teacher-student relations. Control is a problem that all organizations face (Carlson, 1964). Carlson's analysis of service organizations indicated that public schools are the type of service organizations where control is likely to be an acute problem. Pupil control is a central aspect of school life (Hoy & Miskel, 1982). The PCI instrument is a measure of how educators view the students on a continuum of humanistic to custodial on 20 items. A humanistic

orientation leads to a democratic atmosphere with open channels of two-way communication between pupils and teachers and increased student self-determination (Hoy & Miskel, 1982). The term "humanistic orientation" stresses the importance of the individual and the creation of an atmosphere that meets student needs. Teachers who have a custodial orientation conceive of the school as an autocratic organization with a rigid pupil-teacher status hierarchy. Teachers do not attempt to understand student behavior but view misbehavior as a personal affront. Impersonality, cynicism, and mistrust pervade the atmosphere of the custodial school (Hoy & Miskel, 1982).

The concepts of openness of climate and pupil control orientation seem to be highly compatible (Hoy & Miskel, 1982). In general, humanistic teachers are more likely than custodial teachers to: 1) work well together, 2) have high morale and are satisfied because of their sense of task accomplishment, 3) have principals who deal with teachers on an informal basis rather than strictly by the rules, 4) have principals who motivate by personal example, and 5) have a climate marked by openness, acceptance, and authenticity (Hoy & Miskel, 1982).

Mulhern's (1984) climate study of secondary teachers found that humanistic teachers had higher expectations for students than custodial teachers. Hoy and Appleberry

(1970), in a study of elementary schools, concluded that the humanistic pupil-control orientation and the openness of the organizational climate of the school are strongly correlated ($r = 0.61$).

Expectancy Motivation

Teacher expectation for student achievement is gaining support as an important factor in the motivation for high achievement. Anderson (1982) reported that the level of expectation teachers and administrators hold for each other, and especially for students, is the attitude most frequently associated with climate and student outcomes. Anderson concluded that staff in high achieving schools consistently "manifest attitudes of confidence that students will be able to succeed academically" (1982, p. 403).

The belief that all students can learn at high levels is a combination of the ideas on universal education and high expectations for students. The idea of universal education is found in the historical writings of Comenius (1670/1954, p. 343) who

. . . commends, and calls for, the universal cultivation of the minds. . . . After all, experience shows that some less gifted people have acquired so much knowledge that they have surpassed the more gifted.

The work of Rosenthal and Jacobson (1968) brought attention to the idea that a relationship exists between teacher expectations and student achievement. Their work was criticized on methodology and the lack of a theoretical foundation. Expectations for student achievement have been researched in the push to define effective schools and practices. One of the most important studies was done by Edmonds and Frederiksen (1978) and involved urban schools and minority students. They found that teachers in instructionally effective inner-city schools had higher expectations for students than teachers that taught in other inner-city schools.

This finding was reinforced by the work of Brookover and Lezotte (1979) in a study involving principals and teachers. They found that staffs where achievement scores were improving had higher expectations for their students than the staffs in schools where student achievement was declining.

Similar results were obtained in 1979 in England in a study of 12 secondary schools by Rotter, Maughan, Mortimore, Ouston, and Smith. The effective school research has found a number of studies that conclude that expectancy affects student achievement (Bloom, 1976; Braun, 1976; Brookover & Lezotte, 1979; Brophy & Evertson, 1976; Brophy & Good, 1970; Brophy & Good, 1974; Clark, Lotto, &

Astute, 1984; Cooper, 1979; Dusek, 1975; Dusek & O'Connell, 1973; Edmonds, 1979; Good, 1979; Good, 1981; Guskey, 1982; Lockheed & Morgan, 1979; McDonald & Elias, 1976; MacKenzie, 1983; Phi Delta Kappa, 1980; Rosenshine, 1983; O'Connell, Dusek, & Wheeler, 1974; Rothbart, Dalfen, & Barrett, 1971; Rist, 1970; Rosenthal, 1971, 1974; Weber, 1971).

Miskel, Bloom, and McDonald (1981) used Vroom's (1964) work on expectancy theory as the model for the development of their instrument for measuring teacher expectancy motivation within schools. Vroom (1964) described the essential elements in motivation as expectancy, valence, and instrumentality. Expectancy is the belief that an individual's own efforts will lead to successful performance. Valence is the degree of desirability or attractiveness that an individual attaches to a reward. High valence means that the reward is attractive to the individual. Rewards that hold high valence for teachers are satisfaction for task achievement (high student performance) and esteem from students. The belief that a given performance will lead to attaining the rewards is instrumentality (Vroom, 1964; Hoy & Miskel, 1982). Vroom's model suggested that the propensity to start and maintain behavior was the product of expectancy, valence, and instrumentality.

This concept of motivation to pursue an objective was described by Miskel et al. (1981) as expectancy motivation. Their selection of items to portray expectancy focused on the attainment of educational objectives on student achievement. Miskel et al. (1981, p. 1) identified structural coupling and expectancy climate as two critical variables because "they define mechanisms and norms that strongly influence how individuals interact and the level of effort expended." Items on the expectancy motivation instrument were divided into either intrinsic expectancy motivation items or extrinsic expectancy motivation items. The differentiation was based on the amount of control an individual, in this case a teacher, had on the source of the motivation. Intrinsic referred to an internal feeling of satisfaction or accomplishment in which the teacher had total control. Extrinsic referred to sources outside of the teacher, for example, behaviors of the principal. Extrinsic expectancy motivation was not controlled by the teacher.

Mulhern, 1984, in a study on New Jersey high schools, found that schools with more open climates appeared to have teachers who had a higher expectancy motivation than closed schools ($p < .0006$). Mulhern also found that secondary teachers with a more humanistic pupil control ideology had a higher expectancy motivation ($p < .0006$).

In conclusion, the research indicated a relationship between climate and expectancy motivation on the school level. An open or positive climate has been cited as a desirable characteristic in the effective school research. This open climate was correlated to meeting the needs of individual students (a humanistic pupil control orientation). Expectancy motivation was also correlated to a humanistic orientation. Mastery learning was shown to employ humanistic strategies to improve students' achievement and attitude. A teacher's positive feeling toward teaching and an increase in a teacher's feeling of responsibility for student success was also a result of utilizing the mastery learning paradigm. No research had examined the interrelationships among mastery learning, climate, and expectancy motivation on the individual level; therefore, this research studied these interrelationships.

CHAPTER 3

PROCEDURES

Introduction

The problem of this study was to investigate the interrelationships among elementary teachers' attitudes toward mastery learning, climate, and expectancy motivation. Climate was studied using principal-teacher and teacher-teacher relations, and teacher-student relations. The procedures to collect, organize, and analyze data are described in the eight major divisions of this chapter:

- 1) Introduction,
- 2) Population description and sampling procedure,
- 3) Definition of categories,
- 4) Method of collecting data,
- 5) Method of organizing data,
- 6) Statistical hypotheses,
- 7) Analysis of data, and
- 8) Precautions taken for accuracy.

Population Description and
Sampling Procedure

The population under study consisted of elementary teachers who were employed in schools where mastery learning has been implemented on a voluntary basis through a five credit extension course offered by Montana State University (MSU). The extension course, Secondary Education 571, required the teacher to implement mastery learning in one class for the entire school year. The teachers were required to construct formative and summative tests which were reviewed by the course instructor from MSU. Large group, small group, and individual sessions were utilized on a regular basis to introduce, monitor, and evaluate the teachers' progress in implementating mastery learning.

The following school districts granted permission to the researcher to address the elementary teachers and ask their participation in the study: Absarokee, Colstrip, Cut Bank, Lockwood, Missoula and Roundup. The schools are located in north central, central and western Montana. There were approximately 8,000 students in these districts.

Absarokee contains one elementary school with 18 teachers for 197 students. Absarokee is an unincorporated town located in south central Montana. Although it is a ranching community, it was impacted in the 1986-87 school

year by mining industries which brought 90 additional students to the K-12 system. As of May, 1987, the growth trend was expected to continue.

Colstrip is located just north of the Northern Cheyenne Indian Reservation. Approximately 26 percent of the elementary school population is Native American. The town has a stable population of about 5,500 as recorded in the 1980 census. The main employers in the town are Montana Power and Western Energy. The students come from three socio-economic groups: ranching families, students from families associated with Montana Power or Western Energy, and Native American students from the Northern Cheyenne Indian Reservation. Colstrip contains three elementary schools, one of which participated in this study. The school participating in the study had 23 teachers for 423 students.

Cut Bank contains two elementary schools which have a total of 743 students and 60 teachers. Cut Bank is located in the extreme northern part of Montana on the eastern side of the Rocky Mountains, approximately 30 miles from the Canadian border. It is an agricultural community of ranching and wheat farming with some oil development. The community has a stable population of about 3,600.

Lockwood is located in south central Montana and borders the city of Billings, a trading center with a

population of about 66,900. The school's students come from families who work in Billings or in agricultural related fields. Lockwood contains three elementary schools which have a total of 1,270 students. Two elementary schools with 999 students participated in the study for a total of 60 teachers from Lockwood.

Missoula, with a population of 33,400, is located in western Montana. The lumber industry and the University of Montana are the main employers in the area. Missoula contains 11 elementary schools that participated in the study. Missoula had 354 teachers for 3,572 students.

Roundup is a ranching, lumber, and oil community 40 miles north of Billings, Montana. The town has a stable population of about 2,200. Roundup has one elementary school with 396 students and 30 teachers.

A ratio of sample size to independent variables of 30:1 was recommended by Kerlinger (1965) when multiple regression is used. In this study, this means that 30 teachers were needed for each of the four independent variables for a sample of 120. However, since Mosier's (1951) double cross validation was used when the relationship was significant, a sample ratio of 60:1 was sought for a sample size of 240 teachers. Anticipating a response rate of 60-70 percent, an overall sample size of 400 elementary teachers was sought.

The researcher visited each superintendent to request permission to address the principals and teachers. A meeting with each principal of the elementary schools was arranged in August or September, 1987, to discuss the focus of the study, instruments to be used, and a timeline for gathering the data. Instruments for review were given to the administrators on request. They were asked not to discuss the items on the instruments with the personnel who might be involved in the study.

Description of Categories

The study consisted of five categories: 1) attitude towards mastery learning, 2) principal-teacher and teacher-teacher relations, 3) teacher-student relations, 4) intrinsic expectancy motivation, and 5) extrinsic expectancy motivation. Each of these variables was scored on a continuous scale.

The attitude towards mastery learning concerned beliefs about instruction, testing, and grading. Guskey (1987b) summarized the essential characteristics of mastery learning as feedback and correctives, and congruence among the instructional components. Feedback is essential in that it must be both diagnostic and prescriptive for what needs to be learned. The correctives must approach learning in a way different from the initial instruction.

Formative testing provides feedback and aids in the planning of the correctives for the student. The students must participate in the correctives in order to be directly involved in the learning. Enrichment activities are used to broaden and expand the learning if mastery was obtained from the initial instruction. Congruence among the instructional components is also essential. The four major instructional components in the teaching and learning process are: 1) learning objectives, 2) instruction, 3) feedback and correctives, and 4) competent learners. Congruence among the instructional components means that there must be agreement among the learning objectives, the instruction, and the testing over what has been learned. In other words, the test must match the basis for the learning, the learning objectives, and how these learning objectives were taught. If the learning objectives were taught on the knowledge level, then the test must be on the knowledge level.

In this study, climate included three categories of relationships: 1) principal-teacher, 2) teacher-teacher, and 3) teacher-student. Although climate is difficult to measure (Argyris, 1958), instruments have been designed to focus on particular aspects of an organization by addressing only some of the dimensions. The dimensions of

principal-teacher and teacher-teacher relations are from Halpin and Croft (1982, p. 188) and are listed in Table 1.

Table 1. The OCDQ Subscales

CHARACTERISTICS OF FACULTY AND PRINCIPAL BEHAVIOR

Faculty Behaviors:

- 1) Hindrance (HINDRANCE) refers to the teachers' feelings that they are burdened with routine duties, committee work, and other requirements that the teachers perceive as unnecessary "busy work."
- 2) Intimacy (INTIMACY) refers to the teachers' enjoyment of warm and friendly personal relations with one another.
- 3) Disengagement (DISENGAGEMENT) refers to the teachers' tendency "to go through the motions" without an actual commitment to the task at hand.
- 4) Esprit (ESPRIT) refers to morale growing out of a sense of both task accomplishment and social needs satisfaction.

Principal Behaviors:

- 5) Production emphasis (PRODUCTION) refers to close supervisory behavior on the part of the principal. The principal is highly directive and not sensitive to faculty feedback.
 - 6) Aloofness (ALOOFNESS) refers to formal and impersonal principal behavior; the principal goes by the "book" and maintains social distance from his or her staff.
 - 7) Consideration (CONSIDERATION) refers to warm, friendly behavior by the principal. The principal tries to be helpful and do a little something extra for the faculty when he or she can.
 - 8) Thrust (THRUST) refers to dynamic principal behavior in which an attempt 'to move the organization' is made through the example that the principal sets for the teachers.
-

Principal-teacher relations addressed the dimensions of production emphasis, aloofness, consideration, and

thrust in the subtest of the OCDQ. Teacher-teacher relations related to the dimensions of hindrance, intimacy, disengagement, and esprit.

A single score for climate called OPEN was the sum of the scores of the subscales of thrust and esprit minus the subscale score for disengagement. The higher the score, the more open the climate. Teachers in an open climate school work well together and evidence commitment to their responsibilities in a congenial atmosphere where acts of leadership emerge easily.

Teacher-student relations addressed control on a humanistic to custodial continuum. The humanistic approach stressed both the importance of the individual and the creation of an atmosphere that meets student needs. Learning and behavior were viewed in psychological and sociological terms. Self-discipline was substituted for strict teacher control. A humanistic orientation led to a democratic atmosphere with open channels of two-way communication between pupils and teachers and increased student self-determination.

Teachers who have a custodial orientation conceive of the school as an autocratic organization with a rigid pupil-teacher hierarchy. The flow of power and communication is unilateral and downward; students must accept the decisions of their teachers without question.

Teachers do not attempt to understand student behavior but instead view misbehavior as a personal affront. They perceive students as irresponsible and undisciplined persons who must be controlled through punitive sanctions.

The last category, expectancy motivation, addressed the motivation of teachers to improve instructional effectiveness. Vroom (1964) described expectancy, valence, and instrumentality as essential concepts in motivation. Expectancy is the belief that an individual's own efforts will lead to successful performance. Valence is the degree of desirability or attractiveness that an individual attaches to a reward. High valence means that the reward is attractive to the individual. Rewards such as satisfaction for task achievement (high student performance) and esteem from students are rewards that conceivably hold high valence for teachers. Corbett (1982, p. 191) stated that "primarily because of teacher isolation, students have been shown to be particularly important sources of incentives for teachers."

Instrumentality is the belief that a given performance will lead to attaining the rewards (Vroom, 1964; Hoy & Miskel, 1982). Vroom's model states that the propensity to start and maintain behavior is the product of expectancy, valence, and instrumentality. The concept of motivation to pursue an objective was described by Miskel et al. (1981)

as expectancy motivation. Their selection of items to portray expectancy focused on the attainment of educational objectives.

Extrinsic expectancy motivation is tied to the rewards provided by the organization; for example, recognition, money and promotion. Intrinsic expectancy motivation is from within the individual. An example for an educator would be the feeling that one had used one's abilities to the fullest. The distinction between intrinsic expectancy motivation and extrinsic expectancy motivation is meant to differentiate between the rewards that are under the direct control of the individual and those that are not. Effective school practices include elements associated with teachers who are motivated to continually strive to improve instructional effectiveness (NWREL, 1986).

Method of Data Collection

The primary approach to administering the four instruments was to distribute and collect all instruments at a faculty meeting or small group meeting in each participating school during the last week of September or the first two weeks of October, 1987. The four instruments in a booklet were distributed by an assistant either as staff members entered the room or as they were seated. The same instructions were given at each meeting (see Appendix

E). If there were no faculty meetings or small group meetings scheduled in the required time frame, some principals used the assistant to distribute and collect the instruments on an individual basis.

The primary approach of administering the survey instruments at faculty meetings or inservice meetings in each participating school by assistants was used by Mulhern in 1984 with the PCI and the expectancy motivation instrument. The rate of return of instruments at faculty and inservice meetings was excellent (generally 100 percent), while return of instruments in cases where alternative approaches were used was less successful. No attempt was made to identify or pursue staff members absent from school or attending other activities (e.g. coaches of some sports) on the day of data collection; thus, these staff members were not included.

Attitude towards mastery learning was measured by the Attitude Towards Mastery Learning Instrument (ATML) found in Appendix A. This instrument was reported in the research by Okey (1977). Okey credited the development and validation of the ATML to Dorothy Gabel and 14 graduate students. The ATML has a Spearman-Brown reliability of 0.68. Scores on the ATML can range from a low of 32 (negative attitude toward mastery learning) to a high of

160 (positive attitude). A score of 96 represents a neutral attitude towards mastery learning.

In the review of the ATML, Casagrande (1987) recommended that an additional item be added to address summative testing. The last item in the ATML, number 33, was written by the researcher to address summative testing. This revised version with the additional item was piloted during the summer of 1987 using graduate students in education in the Montana State University summer program and was subjected to the Spearman-Brown reliability test ($r = .6164$).

Principal-teacher relations and teacher-teacher relations were measured by the subtests of the OCDQ that was validated by Halpin and Croft in 1962. The developers administered the final version of the OCDQ to 71 elementary schools. Using factor analysis, 64 items were grouped into eight factors, or subtests. Four of the subtests referred to the characteristics of the faculty group, teacher-teacher relations, and four described various components of principal-teacher interactions, principal-teacher relations. These eight clusters were named for the eight dimensions of school climate. Teacher-teacher relations included the dimensions of hindrance, intimacy, disengagement, and esprit. The

principal-teacher relations included the dimensions of production emphasis, aloofness, consideration, and thrust.

Halpin and Croft (1962, p. 66) computed reliability as summarized in Table 2.

Table 2. Estimates of Internal Consistency of the OCDQ

Subscale	Method A*	Method B**	Method C***
1. Disengagement	.73	.59	.66
2. Hindrance	.68	.54	.44
3. Esprit	.75	.61	.73
4. Intimacy	.60	.49	.53
5. Aloofness	.26	.76	.72
6. Production Emphasis	.55	.73	.53
7. Thrust	.84	.75	.68
8. Consideration	.59	.63	.64

*Split-half coefficient of reliability, corrected by the Spearman-Brown formula (N = 1151).

**Correlation between scores of the odd-numbered and the even-numbered respondents in each school (N = 71).

***Communality estimates for three-factor rotational solution (N = 1151).

Halpin and Croft (1962, pp. 65-67) stated:

These estimates of dependability of the subtest scores - and especially the estimates derived from the communalities - satisfactory for the present, exploratory phase of this research. In short, we have chosen to evaluate these equivalence estimates with full recognition of a simple fact: a test may possess low 'reliability,' yet if all its non-error variance is shared in common with the variance of other variables, the correlations between the test and other 'external' measures can nonetheless be substantial, and hence, in this sense, the test can possess high predictive 'validity.'

Brown (1965) replicated the Halpin and Croft study and substantiated the assignment of items to subtests, found comparable subtest intercorrelations, and concluded that the instrument was reliable.

The OCDQ is usually administered to the entire professional staff of each school, with each respondent asked to describe the extent to which each statement characterizes his or her school. The responses to each item are scaled along a four-point continuum: rarely occurs, sometimes occurs, often occurs, and very frequently occurs, 1, 2, 3, and 4 points, respectively.

To determine the subscale scores for an individual, each of the response scores for the items in that subscale was added together and then divided by the number of items responded to within the subscale. Division was carried to two decimal places. When more than 20 percent of the items in a subscale were not answered, the subscale was discarded. The OCDQ with scoring instructions is included in Appendix B.

Teacher-student relations were measured by the Pupil Control Ideology (PCI) instrument validated by Willower et al. in 1967. Willower et al. (1967) gathered data on the instrument from 170 completed forms collected from the faculty of seven schools, two secondary and five elementary schools from urban, suburban, and rural areas.

The primary procedure used in validating the PCI Form was based upon principals' judgments concerning the pupil control ideology of certain of their teachers. Principals were asked to carefully read descriptions of the custodial and humanistic viewpoints and to identify a specified number of teachers whose ideology was most like each description. The number of teachers of each type to be identified in this manner was based upon the total number of teachers in each school; approximately 15 percent of the faculty was identified with each description. It was then possible to compare mean scores on the PCI form for these two groups of teachers.

Principals of the seven schools mentioned earlier made the required judgments. A t-test of the difference of the means of two independent samples was applied to test the prediction that teachers judged to hold a custodial ideology would differ in mean PCI form scores from teachers judged to have a humanistic ideology. Using a one-tailed test, the calculated t-value was 2.639, indicating a difference in the expected direction, significant at the .01 level.

As a further check on the validity of the PCI form, the mean scores of personnel in the two schools known by reputation to be humanistic were compared with the PCI form scores of personnel in the other school at the same grade

levels in the sample. While no statistical analysis was made in this instance, a trend in the expected direction was clearly visible.

Finally, a cross-validation was carried out using the same techniques described earlier (based upon the principals' judgments of teacher ideology). Using a one-tailed test, Willower et al. (1967) found that the difference in mean PCI form scores for teachers judged to be custodial in ideology and teachers judged to be humanistic was significant at the .001 level.

A split-half reliability coefficient was calculated by correlating even-item subscores with odd-item subscores (N = 170). The resulting Pearson product-moment coefficient was .91; application of the Spearman-Brown formula yielded a corrected coefficient of .95. Hoy and Miskel (1982) reported that in their research utilizing the PCI the Spearman-Brown reliability ranged from .91 to .95 (see Appendix C for the PCI instrument).

Expectancy motivation was measured by the instrument developed and validated by Miskel et al. (1981). The Miskel motivation and reward instrument required that subjects respond to valence items in terms of "importance of reward" and instrumentality items in terms of a "likelihood of getting a reward" on a five-point scale ranging from "very unlikely" to "very likely." The

expectancy measure was also a five-point scale ranging from "strongly agree" to "strongly disagree." The focus of the expectancy measure emphasized student achievement as an indicator of attainment of educational goals.

Miskel et al. (1981) completed extensive review of the instrument in terms of content, construct, convergent and predictive validity as well as internal consistency and test-retest reliability. They found the scales to be reasonable, valid and reliable. (The expectancy motivation instrument is found in Appendix D.) Miskel et al. found the alpha coefficients for reliability to be .79 for the valence scale, .83 for the instrumentality, and .71 for expectancy. The overall reliability coefficient was .87.

All of the items on the instruments were checked under the guidelines for nonsexist language as recommended by the American Psychological Association (APA) publication manual. For example, an item from the OCDQ stated, "The principal sets an example by working hard himself." This was changed to, "The principal sets an example by working hard." A substitution of "he and she" was used to replace "he" if the pronoun form was necessary in the item.

After the data were gathered, they were entered into the computer and rechecked for accuracy.

Method for Organizing Data

The design of the study involved five multiple regression equations. Therefore, the data are presented first in a summary table of descriptive statistics for each of the five variables, followed by an analysis of variance table for each multiple regression equation. When the overall F is significant, a table follows with the analysis of the raw score weights. A stepwise regression model is presented after the analysis of the raw score weights. In conclusion, a summary of the shrinkage of the multiple regression coefficient and the results of Mosier's double cross validation are presented.

Statistical Hypotheses

The following null hypotheses were tested at the .05 level of significance. Ferguson (1981) stated that it is a common convention to accept levels of significance of either .05 or .01. The choice of the level of significance is determined by the consequences of making a Type I or a Type II error. A Type I error occurs when a true null hypothesis is rejected, while a Type II error occurs when a false null hypothesis is retained. In this study a Type II error might deprive the teachers of a strategy that would have a positive effect on the climate of their school,

while a Type I error might cause a school district to spend money on a strategy that does not relate to climate.

Schools are concerned with improving the teaching/learning process but are faced with limited funds. For this study, the .05 level was chosen as a compromise between the .01 level of significance and the .1 level of significance. At the .05 level, the researcher is guarding against the fact that there might be poor use of funds by adopting a strategy that would not be related to climate, but .05 was high enough that a school would not reject a worthwhile strategy. For all of the statistical hypotheses tested, the p values are reported.

The five general questions in Chapter 1 have been answered by the following hypotheses:

1) H_0 : Knowledge of principal-teacher and teacher-teacher relations, teacher-student relations, intrinsic expectancy motivation, and extrinsic expectancy motivation does not account for a significant portion of the variability in attitude towards mastery learning.

H_1 : Knowledge of principal-teacher and teacher-teacher relations, teacher-student relations, intrinsic expectancy motivation, and extrinsic expectancy motivation does account for a significant portion of the variability in attitude towards mastery learning.

2) Ho: Knowledge of teacher-student relations, intrinsic expectancy motivation, extrinsic expectancy motivation, and attitude towards mastery learning does not account for a significant portion of the variability of principal-teacher and teacher-teacher relations.

Hi: Knowledge of teacher-student relations, intrinsic expectancy motivation, extrinsic expectancy motivation, and attitude towards mastery learning does account for a significant portion of the variability of principal-teacher and teacher-teacher relations.

3) Ho: Knowledge of intrinsic expectancy motivation, extrinsic expectancy motivation, attitude towards mastery learning, and principal-teacher and teacher-teacher relations does not account for a significant portion of the variability in teacher-student relations.

Hi: Knowledge of intrinsic expectancy motivation, extrinsic expectancy motivation, attitude towards mastery learning, and principal-teacher and teacher-teacher relations does account for a significant portion of the variability in teacher-student relations.

4) Ho: Knowledge of attitude towards mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations does not account for a significant portion of the variability in intrinsic expectancy motivation.

Hi: Knowledge of attitude towards mastery learning, principal-teacher relations and teacher-teacher relations, and teacher-student relations does account for a significant portion of the variability in intrinsic expectancy motivation.

5) Ho: Knowledge of attitude towards mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations does not account for a significant portion of the variability in extrinsic expectancy motivation.

Hi: Knowledge of attitude towards mastery learning, principal-teacher relations, teacher-teacher relations, and teacher-student relations does account for a significant portion of the variability in extrinsic expectancy motivation.

Analysis of Data

This study was concerned with accounting for the variance in a given dependent variable by knowledge of independent variables. Given the hypotheses of this study, multiple regression was the statistic of choice.

Individual data were used so no information was lost in the analysis. All data were of a continuous nature due to the instrumentation that was selected.

The scores on the ATML ranged from a low of 32 (negative attitude) to a high of 160 (positive attitude). A score of 96 was considered to be a neutral attitude.

The principal-teacher and teacher-teacher relations scores from the subtests of the OCDQ ranged from a low of -6 (negative) to a high of 40 (positive).

The teacher-pupil relations scores ranged from 20 to 100 on the PCI; the higher the score, the more custodial the pupil ideology. In this research, the scale was reversed so as to be consistent with the preceding instrument in the booklet given to the teachers; therefore, the higher the score, the more humanistic the pupil ideology.

Intrinsic expectancy motivation was calculated by taking the sum of the values of the expectancy motivation responses by the cross products of the intrinsic items, $(a*g) + (b*h) + (c*i)$. Extrinsic expectancy motivation was calculated in the same manner except the extrinsic items were used. The intrinsic and extrinsic expectancy motivation scores ranged from a low of 9 to a high of 1,125.

The procedure for analysis was the same for all the hypotheses. A multiple regression equation was developed for each hypothesis. Table 3 gives the variables for each of the multiple regression equations to be calculated.

Table 3. Independent and Dependent Variables for Regression Analysis

Hypothesis Number	Dependent Variable	Independent Variables
1	X1*	X2, X3, X4, X5
2	X2**	X3, X4, X5, X1
3	X3***	X4, X5, X1, X2
4	X4****	X1, X2, X3
5	X5*****	X1, X2, X3

- *X1 = raw score on attitude toward mastery learning
 **X2 = raw score on principal-teacher and teacher-teacher relations
 ***X3 = raw score on the teacher-student relations
 ****X4 = raw score on intrinsic expectancy motivation
 *****X5 = raw score on extrinsic expectancy motivation

An analysis of variance table (ANOVA) for multiple regression was generated for each multiple regression equation. The F calculated from this table enabled the researcher to conclude if the multiple correlation coefficient was greater than zero, statistically, at the .05 level. The interpretation of the multiple correlation coefficient necessitated that the researcher consider practical significance in regard to the size of the multiple correlation coefficient. When the multiple correlation coefficient was not statistically significant, the analysis ceased for this hypothesis. Descriptive information was then provided to the reader.

When the multiple correlation coefficient was significant, analysis continued in regard to the raw score

weights. Hypotheses were tested to see if a statistically significant difference existed between the raw score weight and zero when the other independent variables were taken into account.

Stepwise regression was done to build the most efficient regression equation when the multiple correlation coefficient was significant. Stepwise regression continued until the increase in size of the multiple correlation coefficient was no longer statistically significant at $\alpha = .05$ level.

The multiple correlation coefficient was tested for shrinkage. Mosier's double cross validation was used for further analysis to test the strength of the multiple correlation coefficient.

Precautions Taken for Accuracy

The data entry process was correlated with the data retrieval process to prevent errors. The researcher, with two assistants, examined the computer printout of the data for possible errors and made appropriate corrections before analysis of the data.

CHAPTER 4

FINDINGS AND INTERPRETATION

Introduction

The problem of this study was to investigate the interrelationships among elementary teachers' attitudes toward mastery learning, climate, and expectancy motivation. Climate was studied using principal-teacher and teacher-teacher relations, and teacher-student relations.

The design of the study was concerned with accounting for the variance in the given dependent variable by knowledge of the independent variables. Five multiple regression equations were generated to match the five general questions in Chapter 1. For each multiple regression equation, the data are presented in an analysis of variance table (ANOVA). When the overall F is significant, a table follows with the analysis of the raw score weights. The stepwise regression model is presented after the analysis of the raw score weights. Interpretation is presented for each hypothesis. In conclusion, the results of Mosier's double cross validation are presented.

Descriptive Statistics

The descriptive statistics for the variables are found in Table 4. This table provides the minimum, maximum, mean, and standard deviations for each variable.

Expectancy motivation is divided into intrinsic (EMII) and extrinsic motivation (EMIE).

Table 4. Descriptive Statistics for OCDQ Subscales, ATML, PCI, and Expectancy Motivation (N = 342)

Variable	Min.	Max.	Mean	Std Dev.
HINDRANCE	1.00	3.83	2.21	0.60
INTIMACY	1.14	3.86	2.58	0.48
DISENGAGEMENT	1.00	3.50	1.73	0.49
ESPRIT	1.40	4.00	2.96	0.54
PRODUCTION	1.14	3.57	2.06	0.43
ALOOFNESS	1.11	3.11	2.12	0.33
CONSIDERATION	1.00	4.00	2.06	0.60
THRUST	1.00	4.00	2.90	0.63
OPEN	-.50	6.70	4.13	1.35
ATML	74.00	147.00	110.66	10.43
PCI	39.00	88.00	68.45	8.12
EMII	225.00	1125.00	666.02	169.88
EMIE	88.00	1125.00	481.10	179.94

Twenty-seven elementary schools received a total of 545 booklets of instruments; of this number 411 were returned for 75.4 percent response rate. For purposes of analysis, the number of respondents was 342 complete data sets.

The five general questions in Chapter 1 have been answered by the following hypotheses, tested at the .05 level of significance. For all of the statistical hypotheses tested, the p-values are reported.

Hypothesis 1

Ho: Knowledge of principal-teacher and teacher-teacher relations, teacher-student relations, and intrinsic expectancy motivation, and extrinsic expectancy motivation does not account for a significant portion of the variability in attitude towards mastery learning.

Hi: Knowledge of principal-teacher and teacher-teacher relations, teacher-student relations, intrinsic expectancy motivation, and extrinsic expectancy motivation does account for a significant portion of the variability in attitude towards mastery learning.

The null hypothesis for the dependent variable of attitude towards mastery learning (ATML) was rejected at the $\alpha = .05$ level, as shown in Table 5. The adjusted R-square for applying this model was .0800. The amount of variance that can be accounted for by knowledge of the independent variables was 8 percent.

Table 5. Multiple Regression ANOVA with ATML as the Dependent Variable

Source	DF	Sum of Squares	Mean Squares	F value	p
Model	11	4067.09	369.74	3.697	0.0001
Error	330	33001.66	100.01		
Total	341	37068.75			
R-square		0.1097	Adj. R-square		0.0800

Table 6 shows that the pupil control orientation as measured by PCI, intrinsic expectancy motivation (EMII), and the subscale of production emphasis (PRODUCTION) as measured by the OCDQ contributed significantly to the variance of the attitude toward mastery learning score (ATML) when the other variables were taken into account.

Table 6. Parameter Estimates for Dependent Variable ATML

Variable	DF	Parameter Estimate	Standard Error	p
INTERCEPT	1	73.318	8.427	0.0001
HINDRANCE	1	-0.517	1.096	0.6374
INTIMACY	1	0.484	1.312	0.7121
DISENGAGEMENT	1	0.309	1.528	0.8399
ESPRIT	1	1.028	1.527	0.5012
PRODUCTION	1	3.042	1.417	0.0326
ALOOFNESS	1	1.259	1.765	0.4762
CONSIDERATION	1	-0.398	1.222	0.7448
THRUST	1	-0.482	1.286	0.7075
PCI	1	0.304	0.071	0.0001
EMII	1	0.009	0.004	0.0273
EMIE	1	-0.001	0.004	0.7948

In applying stepwise regression to find the most efficient model for the dependent variable of attitude towards mastery learning, the independent variables of teacher-student relations as measured by the PCI, intrinsic expectancy motivation (EMII), and the subscale of production emphasis from principal-teacher relations were found to be statistically significant at the alpha = .05 level as shown in Table 7.

Table 7. Summary of Stepwise Regression for Dependent Variable ATML

Step	Variable Entered/Removed	Number In	Partial R-square	Model R-square	p
1	PCI	1	0.0629	0.0629	0.0001
2	EMII	2	0.0256	0.0886	0.0022
3	PRODUCTION	3	0.0164	0.1050	0.0132

Application of Mosier's double cross validation technique yielded multiple correlation coefficients of 0.0683 and 0.0864. Both of these coefficients had p-values that were less than .0006.

Hypothesis 2

Ho: Knowledge of teacher-student relations, intrinsic expectancy motivation, extrinsic expectancy motivation, and attitude towards mastery learning does not account for a

significant portion of the variability of principal-teacher and teacher-teacher relations.

Hi: Knowledge of teacher-student relations, intrinsic expectancy motivation, extrinsic expectancy motivation, and attitude towards mastery learning does account for a significant portion of the variability of principal-teacher and teacher-teacher relations.

Table 8 shows that the null hypothesis was rejected at alpha = .05 level. Both teacher-student relations as measured by the Pupil Control Index (PCI) and extrinsic expectancy motivation (EMIE) contributed significantly to principal-teacher and teacher-teacher relations. The contribution cannot be accounted for by chance alone. The adjusted R-square for applying this model was 0.1180. The amount of variance that can be accounted for by knowledge of the independent variables was approximately 12 percent.

Table 8. Multiple Regression ANOVA with OPEN as the Dependent Variable

Source	DF	Sum of Squares	Mean Squares	F value	p
Model	4	80.04	20.01	12.402	0.0001
Error	337	543.76	1.61		
Total	341	623.80			
R-square		0.1283	Adj. R-square		0.1180

Table 9 shows that the pupil control orientation as measured by PCI and extrinsic expectancy motivation (EMIE) contributed significantly to the variance of the OPEN score when the other variables were taken into account.

Table 9. Parameter Estimates for Dependent Variable OPEN

Variable	DF	Parameter Estimate	Standard Error	p
INTERCEPT	1	-0.121	0.855	0.8879
ATML	1	0.005	0.007	0.5016
PCI	1	0.047	0.009	0.0001
EMII	1	-0.001	0.001	0.2572
EMIE	1	0.002	0.0005	0.0002

Stepwise regression was applied to find the most efficient model for the dependent variable of principal-teacher and teacher-teacher relations as measured by the Organizational Climate Description Questionnaire (OCDQ). The results are shown in Table 10. Teacher-student relations as measured by the Pupil Control Index (PCI) and extrinsic expectancy motivation were found to be statistically significant at the alpha = .05 level. The data in Table 10 indicate there is almost total independence between the contributions of teacher-student relations and extrinsic expectancy motivation.

Table 10. Summary of Stepwise Regression
for Dependent Variable OPEN

Step	Variable Entered/Removed	Number In	Partial R-square	Model R-square	p
1	PCI	1	0.0805	0.0805	0.0001
2	EMIE	2	0.0437	0.1242	0.0001

The multiple correlation coefficients were .0808 and .1599 when Mosier's double cross validation procedure was applied. Both of these coefficients have a p-value of less than .0002.

Hypothesis 3

Ho: Knowledge of intrinsic expectancy motivation, extrinsic expectancy motivation, attitude towards mastery learning, and principal-teacher and teacher-teacher relations does not account for a significant portion of the variability in teacher-student relations.

Hi: Knowledge of intrinsic expectancy motivation, extrinsic expectancy motivation, attitude towards mastery learning, and principal-teacher and teacher-teacher relations does account for a significant portion of the variability in teacher-student relations.

The null hypothesis for the dependent variable of teacher-student relations as measured by the Pupil Control Index (PCI) was rejected at the alpha = .05 level as shown

in Table 11. The amount of variance that was accounted for by knowledge of the independent variables when applying this model was approximately 14 percent.

Table 11. Multiple Regression ANOVA with PCI as the Dependent Variable

Source	DF	Sum of Squares	Mean Squares	F value	p
Model	11	3955.44	359.586	6.395	0.0001
Error	330	18555.71	56.229		
Total	341	22511.16			
R-square		0.1757	Adj. R-square		0.1482

Table 12 shows that the subscales of thrust (THRUST) and hindrance (HINDRANCE) of the Organizational Climate Description Questionnaire, attitude toward mastery learning (ATML), and extrinsic expectancy motivation (EMIE) contributed significantly to the variance of the PCI score when the other variables were taken into account.

Table 12. Parameter Estimates for Dependent Variable PCI

Variable	DF	Parameter Estimate	Standard Error	p
INTERCEPT	1	48.884	6.469	0.0001
HINDRANCE	1	-2.130	0.814	0.0093
INTIMACY	1	0.223	0.984	0.8208
DISENGAGEMENT	1	-0.131	1.463	0.9094
ESPRIT	1	0.454	1.146	0.6920
PRODUCTION	1	-1.338	1.068	0.2110

Table 12--continued.

Variable	DF	Parameter Estimate	Standard Error	p
ALOOFNESS	1	-0.096	1.325	0.9423
CONSIDERATION	1	1.385	0.914	0.1305
THRUST	1	2.048	0.958	0.0333
ATML	1	0.171	0.040	0.0001
EMII	1	0.002	0.003	0.5590
EMIE	1	-0.007	0.003	0.0255

The stepwise regression analysis for the dependent variable of teacher-student relations, Table 13, yielded a model containing thrust, attitude towards mastery learning, hindrance, and extrinsic expectancy motivation as statistically significant at the alpha = .05 level.

Table 13. Summary of Stepwise Regression for Dependent Variable PCI

Step	Variable Entered/Removed	Number In	Partial R-square	Model R-square	p
1	THRUST	1	0.0774	0.0774	0.0001
2	ATML	2	0.0473	0.1248	0.0001
3	HINDRANCE	3	0.0262	0.1510	0.0014
4	EMIE	4	0.0133	0.1643	0.0210

Application of Mosier's double cross validation technique yielded multiple correlation coefficients of .1352 and .1349. Both of these coefficients had p-values of less than .0001.

Hypothesis 4

Ho: Knowledge of attitude towards mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations does not account for a significant portion of the variability in intrinsic expectancy motivation.

Hi: Knowledge of attitude towards mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations does account for a significant portion of the variability in intrinsic expectancy motivation.

The null hypothesis for the dependent variable of intrinsic expectancy motivation was rejected at the alpha = .05 level as seen in Table 14. The adjusted R-square for application of this model was .0298. Only 2.98 percent of the variance in the dependent variable of intrinsic expectancy motivation could be accounted for by knowledge of the independent variables of principal-teacher and teacher-teacher relations, teacher-student relations, and attitude towards mastery learning.

Table 14. Multiple Regression ANOVA with EMII as the Dependent Variable

Source	DF	Sum of Squares	Mean Squares	F value	p
Model	3	377438	125812	4.493	0.0042
Error	338	9464040	28000		
Total	341	9841478			
R-square		0.0384	Adj. R-square		0.0298

Table 15 shows that the principal-teacher and teacher-teacher relations as measured by the openness index score (OPEN) of the Organizational Climate Description Questionnaire (OCDQ), attitude toward mastery learning (ATML), and teacher-student relations as measured by the pupil control orientation (PCI) contributed significantly to the variance of the intrinsic expectancy motivation (EMII) score when the other variables were taken into account.

Table 15. Parameter Estimates for Dependent Variable EMII

Variable	DF	Parameter Estimate	Standard Error	p
INTERCEPT	1	374.76	110.66	0.0008
OPEN	1	13.26	7.00	0.0589
ATML	1	2.69	.90	0.0029
PCI	1	-0.90	1.19	0.4523

The model for the dependent variable of intrinsic expectancy motivation that was developed through the use of stepwise regression included only attitude towards mastery learning (ATML) as being statistically significant as shown in Table 16.

Table 16. Summary of Stepwise Regression for Dependent Variable EMII

Step	Variable Entered/Removed	Number In	Partial R-square	Model R-square	p
1	ATML	1	0.0279	0.0279	0.0019

Application of Mosier's double cross validation technique yielded multiple correlation coefficients of .0268 and .0295. Both of these coefficients had p-values of less than .0325.

Hypothesis 5

Ho: Knowledge of attitude towards mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations does not account for a significant portion of the variability in extrinsic expectancy motivation.

Hi: Knowledge of attitude towards mastery learning, principal-teacher and teacher-teacher relations, and teacher-student relations does account for a significant

portion of the variability in extrinsic expectancy motivation.

The null hypothesis for the dependent variable of extrinsic expectancy motivation was rejected at the alpha = .05 level. The results of the analysis are displayed in Table 17. The adjusted R-square for application of this model was 0.0495. The amount of variance that can be accounted for in the dependent variable of extrinsic expectancy motivation by knowledge of the independent variables was approximately 5 percent.

Table 17. Multiple Regression ANOVA with EMIE as the Dependent Variable

Source	DF	Sum of Squares	Mean Squares	F value	p
Model	3	639017	213006	6.921	0.0002
Error	338	10401868	30775		
Total	341	11040885			
R-square		0.0579	Adj. R-square		0.0495

Table 18 shows that the principal-teacher and teacher-teacher relations as measured by the openness index score (OPEN) of the Organizational Climate Description Questionnaire (OCDQ), Attitude Towards Mastery Learning (ATML), and teacher-student relations as measured by the Pupil Control Index (PCI) contributed significantly to the

variance of the intrinsic expectancy motivation (EMIE) score when the other variables were taken into account.

Table 18. Parameter Estimates for Dependent Variable EMIE

Variable	DF	Parameter Estimate	Standard Error	p
INTERCEPT	1	328.94	116.01	0.0049
OPEN	1	29.51	7.36	0.0001
ATML	1	1.78	.94	0.0598
PCI	1	-2.44	1.25	0.0526

The independent variable of principal-teacher and teacher-teacher relations as measured by the Organizational Climate Description Questionnaire (OCDQ) openness score (OPEN) was found to be statistically significant at the alpha = .05 level as shown in Table 19.

Table 19. Summary of Stepwise Regression for Dependent Variable EMIE

Step	Variable Entered/Removed	Number In	Partial R-square	Model R-square	p
1	OPEN	1	0.0412	0.0412	0.0002

Application of Mosier's double cross validation technique yielded multiple correlation coefficients of .0197 and .0791. These coefficients have p-values of .0672 and .0002, respectively.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The problem of this study was to investigate the interrelationships among elementary teachers' attitudes toward mastery learning, climate, and expectancy motivation.

Climate was studied using principal-teacher and teacher-teacher relations, and teacher-student relations. Climate was measured in terms of principal-teacher and teacher-teacher relations by the use of the openness index of the Organizational Climate Description Questionnaire (OCDQ) and its subscales. Climate was also measured in terms of teacher-student relations by use of the Pupil Control Index (PCI). Expectancy motivation as defined by Vroom (1964) was further divided into intrinsic expectancy motivation and extrinsic expectancy motivation for this research.

A booklet containing these instruments with instructions was given to elementary teachers in the following elementary schools in Montana in the fall of 1987: Absarokee, Colstrip, Cut Bank, Lockwood, Missoula,

and Roundup. There were 342 usable data sets from the 27 elementary schools.

The design of the study was concerned with accounting for the variance in the given dependent variable by knowledge of the independent variables. Five multiple regression equations were generated to match the five general questions in Chapter 1. These null hypotheses were tested at the .05 level of significance.

Conclusions

1) Teachers who were positive in their attitude towards mastery learning were more interested in meeting individual student needs and giving more responsibilities to students (humanistic orientation) than teachers who were negative towards mastery learning. These teachers displayed, by their responses, more concern with feeling personally satisfied that they had done a good job teaching rather than receiving recognition from the administration. In regard to relations with the principal, teachers who were positive in their attitude towards mastery learning accepted a principal who was highly directive and utilized close supervisory behavior. Interrelationships among these variables support Guskey's (1984) observations that the role of a teacher was more of a facilitator and less of a judge when the teacher utilized mastery learning

techniques. A facilitator stresses individual student needs and responsibilities. Guskey concluded that as teachers experienced a positive change in the learning outcomes of their students with mastery learning techniques, they expressed both an increase in their positive feeling toward teaching and an increase in personal responsibility for student outcomes. The magnitude of the interrelationships, which was statistically significant, accounted for eight percent of the variance in attitude toward mastery learning when adjusted for sample size (refer to Table 5). Although the practical implications may be limited, the results are useful to administrators considering implementing mastery learning. An administrator who wants to implement the mastery learning paradigm in a building or district should consider whether the individuals on staff are motivated by recognition from the administration or from within themselves; whether the staff are willing to consider the needs of individual students and assign responsibilities to students; and whether the teachers seek and take direction from the administration.

2) Teachers who perceived that they worked in a professional and congenial atmosphere (open climate) acknowledged more interest in meeting the needs of individual students, more concern with both personally

feeling good about their teaching efforts and receiving recognition, and were more positive in their attitude towards mastery learning than teachers who did not. The findings are supported by Maslow's (1970) Hierarachy of Needs Theory of Human Motivation. The lower level needs of physiological, safety and security, and social needs are being met in a positive climate. Teachers can then focus on higher needs such as esteem and self-fulfillment. When the social needs are being met, the teacher can focus on recognition and personal fulfillment concerns in regard to teaching. Mulhern's (1984) research of New Jersey high schools found that schools with more positive atmospheres, or open climates, appeared to have a higher expectancy motivation than closed schools ($p < .006$). This study supports the work of Hoy and Appleberry (1970) who concluded that humanism in the pupil control orientation of a school, a focus on student individual needs and responsibilities, and the openness of the organizational climate of the school were strongly correlated ($r = 0.61$). The interrelationship, in this study, accounted for approximately 12 percent of the variance in the climate or atmosphere score. The practical significance is useful to school administrators. An administrator who wants to create a more positive or open climate should provide opportunities for recognition and appreciation of staff and

initiate a democratic atmosphere focused on meeting individual student needs with open channels of two-way communication between pupils and staff. Students would be treated as responsible individuals. Self-discipline would be emphasized for the students rather than strict teacher control.

3) Teachers who responded positively on meeting the needs of individual students (humanistic orientation) were more personally motivated, more concerned with appreciation and recognition, more positive in their attitude towards mastery learning, and perceived the atmosphere in the school as more positive than those teachers who did not focus on meeting the needs of individual students (custodial orientation). These teachers accepted principal behavior in which an attempt "to move the organization" was evident and did not perceive that they were being burdened with unnecessary "busy work." Committee work, routine duties, and paperwork were perceived as necessary by teachers who focused on the individual needs of students. When applying this model, the amount of the variance that could be accounted for by knowledge of how staff felt about meeting the individual needs of students was approximately 15 percent (refer to Table 11). There is practical significance for an administrator who would like to foster a goal of meeting the individual needs of students. This

administrator should consider implementing mastery learning coordinated with opportunities for staff appreciation, recognition, or promotion (extrinsic expectancy motivation). An effort to "move the organization" (thrust) and increased duties for the staff (hindrance) are activities which the administrator should pursue. The inclusion of thrust supports the work of Hoy and Appleberry (1970) who concluded that there was a correlation ($r = 0.61$) between humanism in the pupil control orientation and openness of organizational climate. Hindrance, the perception that teachers were bothered with unnecessary "busy work," was low. Teachers believed that the work required of them was essential for the students and/or instruction. The results support the research by Mulhern (1984) who found that secondary teachers with a more humanistic pupil control ideology had a higher expectancy motivation ($p < .0006$).

4) Teachers who felt personal rewards from teaching (intrinsic expectancy motivation) were more positive towards mastery learning, perceived the atmosphere in the school as more professional and congenial (open climate), and focused more on meeting the individual needs of the students than teachers who did not. This finding supports the conclusions of the meta-analysis of mastery learning studies by Guskey and Gates (1986). They concluded that

mastery learning teachers had an increase in their positive feelings toward teaching. The interrelationship in this study accounted for three percent of the variance in feelings of personal rewards from teaching (refer to Table 14 for the adjusted R-square). Practical implications are limited, but an administrator should be aware that there is a slight relationship between attitude towards mastery learning and the intrinsic motivation of a teacher.

5) Teachers who were concerned with recognition and appreciation (extrinsic expectancy motivation) were more positive in their attitude towards mastery learning, perceived the climate or atmosphere as more positive, and focused more on the individual needs of the students than teachers who were not as concerned with recognition and appreciation. The magnitude of the R-square accounts for approximately five percent of the variance if this model was applied (as shown in Table 17). However, because of inconsistencies in cross validation, the following conclusion is made with caution. In an effort to increase opportunities for recognition and appreciation for staff, administrators should promote the aspects of an open climate which include efforts to "move the organization," provide a sense of both task accomplishment and social needs satisfaction (esprit), and promote commitment to the present tasks.

In summary, there was an interrelationship among selected elements of the effective school research and mastery learning. Meeting the needs of individual students (humanistic orientation) was common to both mastery learning and a positive atmosphere or climate (OPEN). A positive attitude towards mastery learning (ATML) was the factor for explaining teachers' personal satisfaction with teaching (intrinsic expectancy motivation). Extrinsic expectancy motivation, which is characterized by providing opportunities for staff recognition, appreciation, and promotion, was a factor for both a positive climate (OPEN) and meeting the needs of individual students (humanistic orientation).

Recommendations

Administrators who wish to implement elements of the effective school research, specifically a positive climate, should have a goal of meeting the needs of individual students. In order to achieve this goal, administrators should initiate "efforts to move the organization" (thrust), implement the mastery learning paradigm (ATML), assign teachers duties that are not perceived as a burden (hindrance), and provide staff opportunities for appreciation or recognition (extrinsic expectancy motivation).

Principals who wish to implement the effective school research should consider initiating the mastery learning paradigm in their schools. Additional teaching strategies such as Teacher Expectations Student Achievement (TESA), Models of Teaching, Instructional Strategies into Practice (ITIP), and wait time should be included in a long term study to determine the interrelationships among these strategies and elements of the effective school research, such as climate and expectancy motivation. More research in this area would give administrators practical tools for implementating the effective school research.

Teacher preparation programs should consider the interrelationship between the mastery learning paradigm and the effective school research and evaluate what emphasis programs place on the elements of mastery learning. The teacher preparation programs should promote an understanding of practices that correlate with the effective school research and effective instruction.

This study of mastery learning and selected elements of the effective school research should be replicated in other states and in urban settings. The schools in this study were all located in Montana and would be considered rural.

Scholars in the field of educational research should consider additional research on the personal response of

teachers to change. If an administrator initiates the mastery learning paradigm in a school, some teachers will resist the implementation. Administrators need information and training on how to help individual teachers adopt new teaching strategies. This is especially true in the second and third year of implementation when the enthusiasm may begin to wane.

Another area for further study is in the group dynamics of adopting effective instruction techniques through school or district staff development opportunities. Is there a critical mass of adoption of the techniques that is necessary before the climate becomes more favorable and reinforces the initial adoption? Joyce and Showers (1988) wrote of the need for certain staff to "learn to learn" before they are ready to be introduced to instructional techniques that will increase student achievement. How can a district develop an optimal climate for introducing effective instructional strategies? Developing an optimal climate for introducing instructional strategies would help administrators implement the effective school research in an efficient manner.

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APPENDICES

APPENDIX A

ATML Questionnaire

Attitude Toward Mastery Learning Questionnaire (ATML)

The purpose of this instrument is to get your reaction to statements about testing and grading. Please answer each item by circling the answer which best indicates how you feel about each statement. There are no right or wrong answers.

SA = Strongly Agree

A = Agree

U = Undecided

D = Disagree

SD = Strongly Disagree

- | | | | | | |
|--|----|---|---|---|----|
| 1. Tests aid students in learning. | SA | A | U | D | SD |
| 2. Students should be told what they will be tested on before they take the test. | SA | A | U | D | SD |
| 3. Any teacher could find diagnostic testing helpful. | SA | A | U | D | SD |
| 4. I use tests to find out which students are failing which tasks and then I try to do something about it. | SA | A | U | D | SD |
| 5. If students perform poorly on tests, then they have not learned the material. | SA | A | U | D | SD |
| 6. Students could administer and score their own tests. | SA | A | U | D | SD |
| 7. Low test scores may indicate that the teacher failed to teach what was necessary. | SA | A | U | D | SD |
| 8. Tests given every three to four weeks are enough to tell how a student is doing. | SA | A | U | D | SD |
| 9. All students could eventually do equally well if given enough time to learn. | SA | A | U | D | SD |

- | | | | | | | |
|-----|---|----|---|---|---|----|
| 10. | I would prefer to spend less time making out and grading tests and more time teaching. | SA | A | U | D | SD |
| 11. | My tests show what a student knows about what I taught. | SA | A | U | D | SD |
| 12. | By using test scores, I can find out which teaching materials and procedures are doing a good job. | SA | A | U | D | SD |
| 13. | Tests should only be graded by the teacher. | SA | A | U | D | SD |
| 14. | The primary purpose of tests is to compare students and give grades. | SA | A | U | D | SD |
| 15. | Tests written to diagnose individual learning problems are impractical. | SA | A | U | D | SD |
| 16. | Generally, it is the fault of students if they make low scores on a test. | SA | A | U | D | SD |
| 17. | Short tests given frequently are valuable since they give a good idea of how my students are progressing. | SA | A | U | D | SD |
| 18. | Discussing the subject with students can be a good form of testing. | SA | A | U | D | SD |
| 19. | Student results on diagnostic tests often alter my subsequent instruction. | SA | A | U | D | SD |
| 20. | Testing takes more time than it's worth. | SA | A | U | D | SD |
| 21. | There will always be A, B, C, D, and F students in every course and subject. | SA | A | U | D | SD |
| 22. | Teachers should teach specifically to prepare students for tests. | SA | A | U | D | SD |
| 23. | The most important job of a teacher is to see that all students master the objectives of the course. | SA | A | U | D | SD |

24. No matter what the teacher does, some students will always do much better on tests than others. SA A U D SD
25. A student who does poorly on a test should restudy and be tested again. SA A U D SD
26. It is possible in ordinary classrooms to diagnose students' individual learning problems and to correct them. SA A U D SD
27. Some students may work faster than others and cover more materials, but nearly all students can reach a high level of achievement. SA A U D SD
28. If most students in a class receive A's, the teacher is too lax. SA A U D SD
29. Most classes are so large that it is impractical to give individual assignments. SA A U D SD
30. If a teacher gives slow students the time they need to master a topic, bright students will become bored. SA A U D SD
31. Tests do not really show how much a student has learned. SA A U D SD
32. The important things students learn in class often are not part of the planned lesson. SA A U D SD
33. It is important to measure student achievement with a summative exam. SA A U D SD

APPENDIX B

OCDQ Questionnaire

Organizational Climate Description Questionnaire (OCDQ)

Please answer the following questions about your school. Please answer them by marking one of the set of lines provided for each answer. Do not dwell too long on any one item, but answer it as you think the situation exists in your school. There are 64 questions in this section. As an individual you cannot be identified with this instrument.

RO = Rarely occurs

SO = Sometimes occurs

OO = Often occurs

VFO = Very frequently occurs

- | | | | | |
|---|----|----|----|-----|
| 1. Teachers' closest friends are other faculty members at this school. | RO | SO | OO | VFO |
| 2. The mannerisms of teachers at this school are annoying. | RO | SO | OO | VFO |
| 3. Teachers spend time after school with students who have individual problems. | RO | SO | OO | VFO |
| 4. Instruction for the operation of teaching aids is available. | RO | SO | OO | VFO |
| 5. Teachers invite other faculty members to visit them at home. | RO | SO | OO | VFO |
| 6. There is a minority group of teachers who always oppose the majority. | RO | SO | OO | VFO |
| 7. Extra books are available for classroom use. | RO | SO | OO | VFO |
| 8. Sufficient time is given to prepare administrative reports. | RO | SO | OO | VFO |
| 9. Teachers know family background of other faculty members. | RO | SO | OO | VFO |
| 10. Teachers exert group pressure on nonconforming faculty members. | RO | SO | OO | VFO |
| 11. In faculty meetings, there is the feeling of "let's get things done." | RO | SO | OO | VFO |

12.	Administrative paper work is burdensome at this school.	RO	SO	OO	VFO
13.	Teachers talk about their personal life to other faculty members.	RO	SO	OO	VFO
14.	Teachers seek special favors from the principal.	RO	SO	OO	VFO
15.	School supplies are readily available for use in classwork.	RO	SO	OO	VFO
16.	Student progress reports require too much work.	RO	SO	OO	VFO
17.	Teachers have fun socializing together during school time.	RO	SO	OO	VFO
18.	Teachers interrupt other faculty members who are talking in staff meetings.	RO	SO	OO	VFO
19.	Most of the teachers here accept the faults of their colleagues.	RO	SO	OO	VFO
20.	Teachers have too many committee requirements.	RO	SO	OO	VFO
21.	There is considerable laughter when teachers gather informally.	RO	SO	OO	VFO
22.	Teachers ask nonsensical questions in faculty meetings.	RO	SO	OO	VFO
23.	Custodial service is available when needed.	RO	SO	OO	VFO
24.	Routine duties interfere with the job of teaching.	RO	SO	OO	VFO
25.	Teachers prepare administrative reports by themselves.	RO	SO	OO	VFO
26.	Teachers ramble when they talk in faculty meetings.	RO	SO	OO	VFO
27.	Teachers at this school show much school spirit.	RO	SO	OO	VFO

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|-----|---|----|----|----|-----|
| 28. | The principal goes out of his or her way to help teachers. | RO | SO | OO | VFO |
| 29. | The principal helps teachers solve personal problems. | RO | SO | OO | VFO |
| 30. | Teachers at this school stay by themselves. | RO | SO | OO | VFO |
| 31. | The teachers accomplish their work with great vim, vigor, and pleasure. | RO | SO | OO | VFO |
| 32. | The principal sets an example by working hard. | RO | SO | OO | VFO |
| 33. | The principal does personal favors for teachers. | RO | SO | OO | VFO |
| 34. | Teachers eat lunch by themselves in their own classrooms. | RO | SO | OO | VFO |
| 35. | The morale of the teachers is high. | RO | SO | OO | VFO |
| 36. | The principal uses constructive criticism. | RO | SO | OO | VFO |
| 37. | The principal stays after school to help teachers finish their work. | RO | SO | OO | VFO |
| 38. | Teachers socialize together in small select groups. | RO | SO | OO | VFO |
| 39. | The principal makes all class-scheduling decisions. | RO | SO | OO | VFO |
| 40. | Teachers are contacted by the principal each day. | RO | SO | OO | VFO |
| 41. | The principal is well prepared when she or he speaks at school functions. | RO | SO | OO | VFO |
| 42. | The principal helps staff members settle minor differences. | RO | SO | OO | VFO |
| 43. | The principal schedules the work for the teachers. | RO | SO | OO | VFO |
| 44. | Teachers leave the grounds during the school day. | RO | SO | OO | VFO |

- | | | | | | |
|-----|--|----|----|----|-----|
| 45. | Teachers help select which courses will be taught. | RO | SO | OO | VFO |
| 46. | The principal corrects teachers' mistakes. | RO | SO | OO | VFO |
| 47. | The principal talks a great deal. | RO | SO | OO | VFO |
| 48. | The principal explains his or her reasons for criticism to teachers. | RO | SO | OO | VFO |
| 49. | The principal tries to get better salaries for teachers. | RO | SO | OO | VFO |
| 50. | Extra duty for teachers is posted conspicuously. | RO | SO | OO | VFO |
| 51. | The rules set by the principal are never questioned. | RO | SO | OO | VFO |
| 52. | The principal looks out for the personal welfare of teachers. | RO | SO | OO | VFO |
| 53. | School secretarial service is available for teachers' use. | RO | SO | OO | VFO |
| 54. | The principal runs the faculty meeting like a business conference. | RO | SO | OO | VFO |
| 55. | The principal is in the building before teachers arrive. | RO | SO | OO | VFO |
| 56. | Teachers work together preparing administrative reports. | RO | SO | OO | VFO |
| 57. | Faculty meetings are organized according to a tight agenda. | RO | SO | OO | VFO |
| 58. | Faculty meetings are mainly principal-report meetings. | RO | SO | OO | VFO |
| 59. | The principal tells teachers of new ideas that she or he has run across. | RO | SO | OO | VFO |
| 60. | Teachers talk about leaving the school system. | RO | SO | OO | VFO |
| 61. | The principal checks the subject-matter ability of teachers. | RO | SO | OO | VFO |

- | | | | | | |
|-----|--|----|----|----|-----|
| 62. | The principal is easy to understand. | RO | SO | OO | VFO |
| 63. | Teachers are informed of the results of the supervisor's visit. | RO | SO | OO | VFO |
| 64. | The principal insures that teachers work to their full capacity. | RO | SO | OO | VFO |

Scoring for the OCDQ-IV

<u>Subscales</u>	<u>Items</u>
I. Characteristics of the Group	
Disengagement (10 items)	2, 6, 10, 14, 18, 22, 26, 30, 38, 60
Hindrance (6 items)	4*, 8*, 12, 16, 20, 24
Esprit (10 items)	3, 7, 11, 15, 19, 21, 23, 27, 31, 35
Intimacy (7 items)	1, 5, 9, 13, 17, 25*, 56
II. Behavior of the Leader	
Aloofness (9 items)	34, 40, 44, 51, 53*, 54, 57, 58, 63*
Production Emphasis (7 items)	39, 43, 46, 47, 50, 61, 64
Thrust (9 items)	28, 32, 36, 41, 48, 52, 55, 59, 62
Consideration (6 items)	29, 33, 37, 42, 45, 49
<u>Response</u>	<u>Score</u>
Rarely Occurs (RO)	1
Sometimes Occurs (SO)	2
Often Occurs (OO)	3
Very Frequently Occurs (VFO)	4

* Scored Negatively

Determining Subscale Scores for an Individual

1. Add the response scores for items responded to within a subscale. Then divide this sum by the number of items responded to within the subscale.
2. Do for all eight subscales.

Note: Carry division to two decimal points. If more than twenty percent of the items in a subscale are not answered, the subscale is to be discharged.

Determining Subscale Scores for the Unit of Analysis

1. Compute individual subscale scores as above.
2. Add subscale scores within a subscale across individuals. Then divide this sum by the number of individual subscale responses.
3. Do for all eight subscales.

Plotting and Analysis

Plot or conduct analysis of subscales.

APPENDIX C

PCI Questionnaire

Pupil Control Index (PCI)

On the following pages a number of statements about teaching are presented. Our purpose is to gather information regarding the actual attitudes of educators concerning these statements.

You will recognize that the statements are of such a nature that there are no correct or incorrect answers. We are interested only in your frank opinion of them.

Your responses will remain confidential, and no individual will be named in the report of this study. Your cooperation will be greatly appreciated.

Instructions: Following are 20 statements about schools, teachers, and pupils. Please indicate your personal opinion about each statement by circling the appropriate response at the right of the statement.

SA = Strongly Agree
 A = Agree
 U = Undecided
 D = Disagree
 SD = Strongly Disagree

- | | | | | | |
|---|----|---|---|---|----|
| 1. It is desirable to require pupils to sit in assigned seats during assemblies. | SA | A | U | D | SD |
| 2. Pupils are usually not capable of solving their problems through logical reasoning. | SA | A | U | D | SD |
| 3. Directing sarcastic remarks toward a defiant pupil is a good disciplinary technique. | SA | A | U | D | SD |
| 4. Beginning teachers are not likely to maintain strict enough control over their pupils. | SA | A | U | D | SD |
| 5. Teachers should consider revision of their teaching methods if these are criticized by their pupils. | SA | A | U | D | SD |
| 6. The best principals give unquestioning support to teachers in disciplining pupils. | SA | A | U | D | SD |
| 7. Pupils should not be permitted to contradict the statements of a teacher in class. | SA | A | U | D | SD |

8. It is justifiable to have pupils learn many facts about a subject even if they have no immediate application. SA A U D SD
9. Too much pupil time is spent on guidance and activities and too little on academic preparation. SA A U D SD
10. Being friendly with pupils often leads them to become too familiar. SA A U D SD
11. It is more important for pupils to learn to obey rules than that they make their own decisions. SA A U D SD
12. Student governments are a good "safety valve" but should not have much influence on school policy. SA A U D SD
13. Pupils can be trusted to work together without supervision. SA A U D SD
14. If a pupil uses obscene or profane language in school, it must be considered a moral offense. SA A U D SD
15. If pupils are allowed to use the lavatory without getting permission, this privilege will be abused. SA A U D SD
16. A few pupils are just young hoodlums and should be treated accordingly. SA A U D SD
17. It is often necessary to remind pupils that their status in school differs from that of teachers. SA A U D SD
18. A pupil who destroys school material or property should be severely punished. SA A U D SD
19. Pupils cannot perceive the difference between democracy and anarchy in the classroom. SA A U D SD
20. Pupils often misbehave in order to make the teacher look bad. SA A U D SD

Information Sheet

Instructions: Please complete this form by checking the appropriate boxes and filling in blanks where indicated. This will be kept confidential.

1. Sex

Male Female

2. Marital status

Single Married Widow(er)
 Separated or Divorced

3. Age

20-29 years 30-39 40-49
 50-59 60-69

4. Years of experience _____

5. Amount of education

Less than Bachelor's degree
 Bachelor's degree
 Bachelor's degree plus additional credits
 Master's degree
 Master's degree plus additional credits
 Doctor's degree

6. Undergraduate preparation

Major within the field of education
 Major in area outside the field of education

7. Graduate preparation

Major within the field of education
 Major in area outside the field of education

APPENDIX D

Expectancy Motivation Questionnaire

Expectancy Motivation Instrument

Instrumentality items (I)

Response categories:

- EL = Extremely likely
 QL = Quite likely
 FF = Fifty-fifty chance
 SU = Somewhat unlikely
 NL = Not at all likely

If you perform your job especially well, how likely is it that each of these things will happen?

- | | | | | | |
|--|----|----|----|----|----|
| 1. You will feel better about yourself as an educator. | EL | QL | FF | SU | NL |
| 2. You will be given a chance to learn new things. | EL | QL | FF | SU | NL |
| 3. You will get a feeling that you have accomplished something worthwhile. | EL | QL | FF | SU | NL |
| 4. Your coworkers will be friendly with you. | EL | QL | FF | SU | NL |
| 5. Your supervisor will praise you. | EL | QL | FF | SU | NL |
| 6. You will be asked for advice by students. | EL | QL | FF | SU | NL |

Valence items (V)

Response categories:

- EI = Extremely important
 QI = Quite important
 I = Important
 MI = Moderately important
 LI = Less important

How important is . . . ?

- | | | | | | |
|---|----|----|---|----|----|
| 7. Feeling good about yourself as an educator. | EI | QI | I | MI | LI |
| 8. The chances you have to learn new things. | EI | QI | I | MI | LI |
| 9. The chances you have to accomplish something worthwhile. | EI | QI | I | MI | LI |

10. The friendliness of your coworkers. EI QI I MI LI
11. The praise you receive from your supervisor. EI QI I MI LI
12. Being asked for advice by students. EI QI I MI LI

Expectancy items (E)

This section is designed to gather information about how educators feel about their jobs. Please circle the letter(s) that best describes your feelings.

Response categories:

- SA = Strongly Agree
 A = Agree
 N = Neutral
 D = Disagree
 SD = Strongly Disagree

13. Energetic educators are not particularly successful teachers. SA A N D SD
14. Putting forth a high degree of effort leads to a high level of performance. SA A N D SD
15. Intensive efforts by educators lead to high student achievement. SA A N D SD

APPENDIX E

Directions to Staff

Directions to Staff

The assistant in charge of administering the instrument will give the following instructions to the faculty members:

All of you are familiar with "personality" tests, and how a profile can be constructed to describe an individual's personality. In a similar fashion we are attempting to measure the "personality" of this school with the OCDQ and the PCI climate instruments before you. The two additional instruments in the booklet address grading and motivation and are included in the booklet for research at Montana State University. It is important that your answers be "independent"; so please do not discuss your answers with the other teachers until all the instruments have been collected.

Let me emphasize that this is a school profile; individual responses will be confidential.

The following statements have no correct or incorrect answers. Please answer each item by marking one of the answers for each statement. Do not dwell too long on any one item. We are interested in your frank perceptions regarding these statements. Note that there are 12 pages in the instrument. Please complete all of the items. It should take about 35 minutes. Your responses will remain anonymous and no individual will be named in the report of this research. Your cooperation is greatly appreciated.

The results of this research will be available to the participants in the study by contacting the researcher. The address for the researcher is on the back of your instrument. Thank you.

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