An Investigation of Predictors of Success in Elementary Student Teaching in Selected Seventh-day Adventist Colleges

J. Roger Couty
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AN INVESTIGATION OF PREDICTORS OF SUCCESS IN ELEMENTARY
STUDENT TEACHING IN SELECTED SEVENTH-DAY ADVENTIST COLLEGES

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Anders University
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AN INVESTIGATION OF PREDICTORS OF SUCCESS IN
ELEMENTARY STUDENT TEACHING IN SELECTED
SEVENTH-DAY ADVENTIST COLLEGES

A Dissertation
Presented in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

by
J. Roger Couty
June 1984
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ELEMENTARY STUDENT TEACHING IN SELECTED
SEVENTH-DAY ADVENTIST COLLEGES

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Jean Roger Couty

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ABSTRACT

AN INVESTIGATION OF PREDICTORS OF SUCCESS IN ELEMENTARY STUDENT TEACHING IN SELECTED SEVENTH-DAY ADVENTIST COLLEGES

by

Jean Roger Couty

Chairman: Edward A. Streeter, Ed.D.
ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

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Name of researcher: Jean Roger Couty
Name and degree of faculty adviser: Edward A. Streeter, Ed.D.
Date completed: June 1984

Problem

Investigations of predictors of student teaching success have yielded contradictory results in general. Besides, reports of such investigations could not be located, as related to Seventh-day Adventist colleges. There seemed to be a need for a study of predictors of student teaching success in Seventh-day Adventist colleges.

Method

The purpose of the study was to look at selected factors and determine whether or not they are related to student teaching success. Four hundred and fifty students who had completed their
student teaching experience between Fall quarter 1977 and Spring quarter 1983 were involved in the study. Data were collected from their student files at four selected Seventh-day Adventist colleges. The data were analyzed, using multiple regression computer programs.

Conclusions

A. Eight of the thirty-one predictor variables used in this study were correlated significantly with the criterion measure and it seemed that each one of them could predict student teaching success, singly.

B. Each of the seven categories of predictor variables was significantly correlated with the criterion measure. They appear as reliable predictors of student teaching success.

C. The best combination of variables for the prediction of student success consists of the following:

- Efficiency in giving feedback to pupils
- Motivation as a teacher
- Ability to transfer religious beliefs into teaching
- Knowledge of subject matter
- Ability to establish a class climate conducive to learning
- Ability to find out individual pupils' needs and to attend to those needs
- Presentation of materials and information
- Relationship of student teachers to colleagues
- Organization and planning of lessons
- Ability to establish and maintain discipline.
Recommendations

It is recommended:

1. That the predictor variables that were significantly correlated with the criterion be given due emphasis in the preparation of student teachers.

2. That, in the training of teachers, special emphasis be given to the category "Teaching Skills and Competencies," from which five of the ten variables in the best subset were selected.

3. That representatives of Seventh-day Adventist colleges work together to develop a common set of criteria for the preparation and evaluation of student teachers. This will facilitate data collection for the replication of this study.
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CHAPTER I

INTRODUCTION

The Background of the Study

The importance of the student teaching experience in teacher education programs has been consistently emphasized in literature. Perrodin (1966) stated that student teaching was almost universally accepted as the climax of a teacher's professional preparation in preservice teacher education programs.

Fox (1964) wrote that study after study had shown that student teaching was the most functional and practical experience in the education of prospective teachers. Teachers with years of experience consistently rated student teaching as the most valuable part of all preservice education. Fox (1964) commented that supervised teaching experience was the culmination of the preservice program of future teachers.

Haines (1960) recognized the value to prospective teachers of practical experience with children and youth. He saw such an experience as a necessary concomitant to developing understanding attitudes and skills of teaching.

Byers and Irish (1961) looked at student teaching as a transition between the role as a college student and that of a teacher. This transitional period between college life and a teaching career provided an opportunity to assess strengths, weaknesses,
and potential as a teacher. At the same time, the day-to-day available guidance of an experienced supervising teacher could help the prospective teacher gain confidence in the ability to put the theory studied in college into practice in the classroom.

Haines (1960) stated that the student teaching phase of teacher education made a unique contribution. In some colleges it might be the only laboratory experience provided for the college student to interact with pupils, thereby constituting the sole means for relating studies to professional aims. Even when students had had opportunities to work with children in school situations prior to student teaching, these experiences were, of necessity, limited in scope and depth. Only during student teaching was opportunity provided for continuous contacts with the same group of pupils over a relatively long period of time, and with school personnel in various phases of the total school program.

Student teaching, then, enables a prospective teacher to gain depth of understanding of the teaching situation, continuity of the experience necessary for the development of complex skills of planning, instructing and evaluating. It also provides insight into the contributions of many resource people, and confidence in his/her developing leadership competency.

Byers and Irish (1961) emphasized the importance of student teaching in the teacher education program. They did so both at the secondary and at the elementary level.

Reviewing the broad goals of elementary education, Shane (1962) drew attention to the development of basic skills, problem-solving ability, intellectual growth, improved physical health,
mental and emotional well-being, cultivation of individual talents, development of moral values and human relations skills, and the achievement of an understanding of the workings of practical democracy. Shane (1962) concluded that how successfully goals for elementary school children were pursued depended to a large extent on the individual teacher in the daily experience with pupils. Logically, the training elementary teachers receive should have an influence on their relationships with pupils. In the same line of thought, Labriola (1965) considered the elementary school as one of the most important institutional organizations for education in the American society. He attributed its importance to the universality and intensity of its influence. He recommended that the utmost care be given to the recruitment and preparation of elementary teachers.

Since elementary student teaching seems to be a crucial phase of that preparation for a teaching career (Perrodin, 1966), it deserves special consideration.

**Statement of the Problem**

Byers and Irish (1961) pointed out the predictive value of the student teaching experience. They stated that, if sufficiently realistic, student teaching performance could provide some basis for predicting the future success of the prospective teacher.

Teacher recruiters want the best college graduates for the school systems they represent. Those college students who do not do well in their student teaching experience do not stand a good chance of being recruited. Understandably, there is much frustration and discouragement when a student is refused certification or
employment, after four years of college, on the basis of insufficiency of performance in student teaching. The college student is also frustrated when informed that, not having scored high enough in student teaching, he/she has to go through the experience again.

To avoid such situations, or at least to keep them at a minimum, it seems necessary to either limit college enrollment in teacher education or provide prospective teachers with a kind of preparation that increases the chances of success. For whichever alternative, it seems essential to analyze and isolate criteria which appear to have some predictive value for student teaching success.

Bruno (1969) cited Labriola (1965) who found that college students who did well in the student teaching experience also did well in the initial teaching experience. He suggested that predictive factors which could assist in the selection of candidates for student teaching could have a direct effect on the quality of teachers available for the elementary classrooms (Bruno, 1969, p. 3). Burns (1969) also indicated that successful student teachers tended to be successful teachers later.

In an earlier study, Ullman (1927) pointed out that success in student teaching was the best single measure of future teaching success. Medley (1961) believed that good teachers are made, not born, and that most of this making takes place before they set foot in their first classroom. It can be deduced that this making of good teachers takes place during preservice training, in college years.

Edson (1963) emphasized the role of the college in the
efficient preparation of teachers. He wrote that the college was responsible for the competence of its graduates. It was responsible to the pupils, who would be taught by its graduates, to society, to the profession, and to the college student preparing to teach.

Since literature indicates that there is a relationship between successful student teaching and a successful future teaching career and that student teaching is viewed as a critical component of the teacher education program, it would seem that a study which analyzes the measures used in the evaluation of student teaching to determine their significance as success predictors could be of value to teacher education.

Results of the study can be useful for establishing criteria on which decisions will be made regarding enrollment in teacher education programs, as well as norms for the effective preparation of student teachers.

The Purpose of the Study

This study was carried out with the following purpose: to investigate selected factors, both within the student teacher and in the environment, in order to determine whether or not the factors were related to elementary student teaching success.

The study considered thirty-two selected factors. The first one—the final evaluation of the student teacher—being the criterion, and the other thirty-one being predictors of student teaching success. Those predictors were grouped under the following subheadings: (1) academic achievement, (2) personal qualities, (3) professional qualities, (4) interpersonal relationships, (5)
teaching skills and competencies, (6) classroom management skills, and (7) religious and moral commitments of the student teacher.

The study also attempted to determine whether each of the thirty-one factors had predictive value both in isolation and in combination with other factors. The best combination of factors was also sought.

**Significance of the Study**

Based on a Christ-centered philosophy, Christian college education is unique. It trains teachers for a specific purpose. Teaching is considered a form of ministry, and the teacher becomes an agent of salvation (Knight, 1980). Teaching is much more than the passing on of information and stuffing the students' heads with knowledge. It affects the youth population at its most impressionable age. If the teacher stands at the center of the education process, then the Christian teacher maintains a position of centrality in the Christian school.

Besides the responsibility of providing quality education to students, Seventh-day Adventist teachers are expected to train the youth of the Adventist church to be God's witnesses wherever they may be called for service, within the church or outside.

McCune (1984) studied the topic, "What Do Constituents Want from Seventh-day Adventist Colleges and Universities." He reported that the major business of the Adventist colleges and universities was seen as providing a quality education within a conservative Seventh-day Adventist Christian setting. There was a general agreement that high priority should be placed on the mission of the church, faith and confidence in the Spirit of Prophecy, and a
consistent conservative life style that would help develop each phase of a student's life in a proper social setting.

As it was pointed out earlier, literature suggests that successful student teaching is related to successful teaching (Burns, 1959; Labriola, 1965). Since reports of studies in the area of prediction of student teacher success, as related to Seventh-day Adventist colleges, could not be located, the empirical evidence gained from the present study could be useful to Seventh-day Adventist teacher education. It could be used by professors of elementary education in the preparation of college students for their student teaching experience.

To the extent that college students experience success in student teaching, they will be motivated towards a successful teaching career, thus providing Seventh-day Adventist schools with better teachers. A knowledge of predictors of student teaching success seems to be an asset to that end.

**Basic Assumptions**

In this study, it was assumed that:

1. Successful student teaching increases the chances of success in the teaching career.

2. The evaluation of student teachers participating in the study is done by professionals—university supervisors and supervising teachers—who combine expertise, experience, and honesty.

3. Student teachers in general have a desire to make their practicum a successful experience and consequently are motivated toward that end.
4. Although helping students achieve success was the major goal of this study, it was recognized that not all individuals are suited for the teaching profession.

Limitations

1. Although each subject in the population was given a chance of being selected for this study, only those whose files contained the required information were selected.

2. The transformation of letter grade symbols into numerical figures for the purpose of analysis resulted in the loss of a certain amount of meaning. This was inevitable.

3. The number of variables was limited to thirty-two, because only those variables appearing on student-teachers' evaluation blanks in all colleges participating in this study were used.

Delimitations

1. Restrictions of distance, finances, and time made it necessary to limit the study to the four Seventh-day Adventist institutions in Eastern North America.

2. The study involved students who completed their student teaching in the period from Fall 1976 to Spring 1983 in elementary schools.

3. The study included only the 450 student teachers from whom complete data were available.

Definition of Terms

1. Student teaching or practicum: A period of guided or supervised teaching, during which the college student of teacher
education takes increasing responsibility for teaching a group of learners over a period of several weeks. The two terms were used interchangeably in this study.

2. Successful student teaching: teaching experience for which a student teacher is awarded an evaluation or grade not lower than Good or B in the present study. This included Good, Very Good, Excellent, or B, B+, A-, and A.

3. Student teacher: A college or university student assigned to observe and teach in a cooperative classroom, under supervision.

4. Predictors of success: Those factors which were positively correlated with success in student teaching, in this study.

Theoretical Basis of the Study

This study considered selected factors of student teaching success, both within the student teacher and in the environment. Those factors included personal qualities, student teacher psychological and social behaviors, instructional skills, and class management skills. The theories described below were used as a basis for the final selection of factors for the present study, along with factors available in student teacher evaluation blanks.

It was Gage (1963) who renewed the demand for attention to the theory of teacher behavior in his "Handbook of Research on Teaching." He discussed the nature of theoretical models and described several models of instruction theory. The models described below seemed to be useful in the preparation of student teachers.
Teacher's Perception of Pupils
and Pupil Achievement

Smith (1960) developed and reported a concept of teaching which proposed that a teacher's perception of a pupil's behavior led to the teacher's diagnosis of the pupil's state of interest, readiness, and knowledge. This in turn led to action taken by the teacher in the light of the diagnosis. At the same time, a pupil's perception of the teacher's behavior led to a diagnosis on the part of the pupil, of the teacher's state of interest and his utterances. Thus, the pupil reacted to the actions of the teacher. This tended to become a cycling process leading ultimately to pupil achievement.

Teaching as a Social Action

Smith and Meux (1971) developed a model in which teaching was conceptualized as a system of social action involving an agent (e.g., the teacher), an end-in-view, and a situation. There were two sets of factors in the situation, one over which the agent had no control (e.g., size of classroom, characteristics of pupils) and one over which the agent had control and which he could modify with respect to the end-in-view (e.g., assignments, ways of asking questions, etc.). Modifiable conditions constituting the means by which the end-in-view was reached consisted of two types: one having to do with subject matter and instructional materials and the other with ways of manipulating the subject matter and materials. The manipulation of procedural features of teaching also had two aspects: first, large scale maneuvers which were referred to as strategies; second, smaller teacher behavior components constituting tactical implements of strategy which were referred to as "logical operations,"--these being
forms which verbal behavior took as the teacher shaped the subject matter in the course of instruction.

The Teacher as a Problem-Solver

Turner and Fattu (1960) took a theoretical position in which the teacher was conceptualized primarily as a problem-solver. According to their model, teacher classroom behavior consisted of responses that were instrumental in bringing about a goal state in the form of pupil behavior held to be desirable by a particular teacher or group. When the teacher set the goal of bringing about a particular pupil behavior, he/she generated a problem for him/herself, that of getting the pupil to make the desired response when it was required. According to this concept, effective teachers were good solvers of teaching problems in a variety of teaching situations. Skill in solving teaching problems depended on the ability to acquire instrumental responses and ability to utilize information to select the appropriate instrumental response in a given situation.

Teaching as an Information Processing System

Ryans (1960) developed the information processing system model of teacher behavior. He proposed that teacher behavior was influenced by three major sets of inputs: (1) capabilities and characteristics of the teacher, or internal inputs; (2) conditions external to the teacher, or external inputs; (3) positive and negative feedback inputs.

The information-processing system theory maintained that in activities involved in the formal teaching-learning situation,
selected information in the form of facts, concepts and rules, and relating to cognitive, affective, and psychomotor behavior was assembled, organized, and programmed by the teacher for exchange via some medium (e.g., the teacher, the textbook, a T.V. display, or a programmed lesson) to a receiver-learner (the pupil) in a manner which was expected to enhance the accurate receipt of the information-behavior intended to be conveyed, involving active participation on the part of the receiver-learner.

One way of conceptualizing teacher-information processing was to consider the teacher's activities as a five-phase sequence consisting of:

1. Sensing, identifying, and classifying of information inputs.

2. Evaluating potential courses of action in the light of pupil behavior domain involved, the content of the information to be communicated, and the information form and channel consistent with the intended pupil use of the information.

3. Decision making, involving the selecting of appropriate information content, transmission channels or media and means of information control.

4. Programming and arranging of the intended information output.

5. Transmission of appropriate information via appropriate channels (i.e., teacher behavior).

In the teaching-learning process the immediate purpose for processing information was, of course, to facilitate the pupils' acquisitions of knowledge, understanding, skills, procedures, and
attitudes. Such acquisitions were the outcomes of good teaching. Ryans (1960) believed that there was a relation between effective teaching and the model of information processing he developed. He stated that teaching was effective when the teacher was a good motivator, reinforcer, presenter, explainer, organizer, evaluator, and counselor. When teaching was good, such acquisition of learning was accomplished with minimum waste of time and effort, without acquisition of harmful behavioral concomitants on the part of the pupils, and in ways that enhanced retention of learning and its transfer to other situations.

**Teacher Effectiveness Theory**

A vast collection of literature documents the relations between student-learning outcomes and teacher effectiveness (Haertel, Walberg & Weinstein, 1983). Below are summarized eight theories or models presenting holistic conceptions of student learning in classroom settings.

**The Carroll Model.** One of the earliest and most influential models for school learning was proposed by Carroll (1963). The constructs of aptitude, perseverance, and ability to comprehend instruction describe behaviors students bring to the instructional setting. Opportunity to learn and quality of instruction refer to the instructional processes used by the teacher. Teachers who are poor judges of how much time to allocate to activities tend to present too much content and frustrate their students.

Quality of instruction is operationalized as the organization of instruction for the ease of acquisition by students. If the quality of instruction is poor, pupils will depend on their own resources.
The Cooley-Leinhardt Model. Cooley and Leinhardt (1975) developed a classroom process that focused on the relationship between classroom practices and school performance. The criterion variable being predicted included both academic achievement and attitudes toward school, peers, and teachers. School performance was viewed as a function of the following constructs: initial abilities, opportunity, motivators, structure, and instructional events. Motivators include teacher praise for on-task behaviors, choice of desirable leisure-time activities for completed work, or instructional materials that incorporate motivational content that appeal to students.

The Bloom Model. Bloom's (1976) model describes two types of prerequisites to learning: the learner's cognitive entry behaviors and affective entry characteristics. Quality of instruction is reflected in the use of cues, reinforcements, feedback, and correctives, but it is also indicated by student participation. The results of instruction include not only achievement and affective incomes, but also improved rate of learning.

The Harnischfeger-Wiley Model. Central to the Harnischfeger-Wiley (1976) model is the explicit recognition that all pupil outcomes are directly mediated through pupil pursuit. Thus teacher behaviors can influence learning only as those pursuits are affected.

In analyzing teacher activities and pupils' pursuits the authors segment the total time pupils spend on given subject matter, into seven learning-setting categories: (1) whole-class instruction, (2) supervised small-group instruction, (3) supervised individual instruction, (4) unsupervised group instruction, (5) unsupervised
individual instruction, (6) transition, and (7) out-of-school pursuits.

Active learning time is determined by the pupil's task involvement and intrinsic motivation as well as by the teacher's motivating skills and surveillance.

The Bennett Model. Bennett (1978) attempted to explain factors affecting success in school learning at the primary level by using concepts that generate practical research questions. The major variables were: quantity of schooling, time allocated to curriculum activity, total active learning time, total content comprehended, achievement on curriculum task, and feedback. Rather than stressing teacher behavior, Bennett defines student activities as mediating all other aspects of the learning situation.

The Gagné Model. Gagné (1977) described five major categories of learning outcomes: verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills.

The instructional events that support the entire sequence of the learning processes depend on the teacher's skills. They include activating motivation, informing the learner of the objectives, directing attention, stimulating recall, providing guidance, enhancing retention, promoting transfer of learning, eliciting performance, and providing feedback.

The Glaser Model. Glaser (1976) developed a detailed and straightforward model of teaching, with four basic components: (1) analysis of the competence and skill to be achieved, (2) description of the initial state with which learning begins, (3)
conditions that have to be implemented to produce change from the
learner's initial state to the state of competence, and (4) assessment
procedures to determine the short-term and long-term outcomes of the
conditions implemented.

Glaser's model indicates that there are many aspects of teaching that are not based on the instructor's personality. Rather they are based on the intelligent use of information from assessment and instructional results.

The Bruner Model. Bruner set forth a normative theory of instruction organized around four requirements: (1) implementing a predisposition toward learning, (2) structuring the body of knowledge to be taught, (3) sequencing the presentation of materials to be learned, and (4) specifying the nature and spacing of rewards and punishments.

Because instruction, for Bruner, is a provisional state with the object of making the learner self-sufficient, he advocates a shift from extrinsic to intrinsic motivators, and from immediate to deferred gratifications. He also discusses feedback and states that it is important to provide feedback just at the point when learners must compare their performance to criterion.

Summary

On the basis of the theories described, it was recognized that:

1. The teacher's perception of a pupil's behavior could lead to a diagnosis of the latter's interest, readiness, and knowledge, and
to subsequent actions on the part of the former for the achievement of educational goals.

2. Teaching was, in part, a system of social action involving an agent, a goal, and a situation, and that the agent (the teacher) did manipulate and modify conditions in the situation in order to achieve educational objectives.

3. Pupils looked upon the teacher as a problem-solver. Teachers were expected to solve problems in their class. At the same time, they taught pupils to solve their own problems.

4. Information processing occupied an important place in teaching.

5. Psychological science has developed models that stress not only the input learners bring into their activities but also the teacher's role as a facilitator of learning.

The present study took into consideration the standpoint of theorists. It would seem that teacher education colleges would prepare teachers more effectively if they made provision in their programs for the development of skills in prospective teachers such as: perceiving pupils' needs and interests and attending to those; controlling the school environment with a view to facilitating learning; making social contacts easier between teacher and pupils as well as among pupils; and facilitating communication so that information could be processed successfully.

To include those skills (and others) in teacher education programs, it is necessary to find out whether or not they contribute to the effectiveness of teaching.
Related Studies

The area of prediction of elementary student teaching success has been investigated to some extent. Investigations that used factors related to the present study are reported below.

Padilla (1981) looked into the relationship among formal operational abilities, selected achievement variables, and student teaching success. Student teaching abilities were assessed, using the Teacher Performance Assessment Instruments (TPAI). Included among the results was the lack of a significant relationship between any of the broad teaching performance categories and teacher cognitive development.

Capie et al. (1980) used pupil achievement to validate ratings of student-teacher performance. Assessment was based on the TPAI, a set of four instruments including: teacher plans and materials, classroom procedures, interpersonal skills, and professional standards. Results indicated that 77 of 105 TPAI ratings on a first occasion, and 54 of 200 on a second occasion were significantly and positively related to achievement gains.

Reporting on an experimental program in elementary education at Shepherd College, Swann (1976) stated that the philosophy of the program was that teachers in training needed more early contact with schools. In other words, there was too much delay in the application of theory into practice.

Carpenter and Foster (1979) surveyed teacher trainees on their social origins and reasons for choosing teaching as a career. Results indicated that the decision was related to the interplay of external influences and inner dispositions.
Noad (1979) studied the influence of self-concept and educational attitudes on elementary student-teacher performance. He found that student-teacher competencies were related to educational attitudes and self-concept operating jointly. Variance in student teacher performance was significantly affected by the addition of self-concept.

Shulman, Lee, et al. (1968) studied the inquiry patterns of students in teacher training programs. Correlation and multiple-regression analyses revealed that through using a combination of predictor variables characterizing different personality-cognitive style types, significant predictions could be made of the inquiry behavior of teachers-in-training as subjects. College grade-point average generally proved irrelevant as a predictor.

Bridges (1968) looked at preferences of school principals between instrumental and expressive characteristics of teachers. Although the formulated hypotheses did not hold, the results showed a higher probability of success for teachers of the expressive type than for the instrumental type.

MacDonald et al. (1965) tested a research-oriented elementary education student teaching program. One of the outcomes of the study was that early predictions of success made by instructors remained correlated with performance both at the end of student teaching and the first year of teaching. One possible explanation was that there is a global quality about individuals, tied to personality and ability and evidenced in interpersonal relations, which remains consistent regardless of training method or traditional student-teaching experience.
Wilk et al. (1962) investigated the relationship between observed classroom behaviors of elementary student teachers, predictors of those behaviors, and ratings by supervisors. The design treated four sources of variation as experimental variables: (1) student teachers' grade-level preference, (2) student teachers' quarter of experience; (3) classroom grade level, and (4) order of preference in two different grade-level assignments. The following conclusions were reached: (1) admission data were not reliable for classroom behavior predictions, (2) classroom placements were more closely related to specific student-teacher responses to individual pupils and to a class than they were to general tendencies to use certain categories of verbal behavior, and (3) ratings between supervisors and research observers on either personality or classroom performance judgments generally exhibited a high degree of agreement.

Cook (1963) studied the relationship of selected factors to the success of student teachers at the University of Arizona. He stated that the results of his study, for the most part, were negative insofar as finding a criterion for predicting student-teaching success. Of the four variables which were hypothesized as being related to success in student teaching, only one, namely, speech characteristics, was found to produce a significant difference between the more successful student teachers and the less successful. The hypothesis that there was a significant difference between his two samples of student teachers in the areas of personality, general culture, and grade-point average was not supported.

The writer recognized the limitation imposed by the relatively small number of cases studied, and that the data presented referred to
comparisons of groups. Within each group the range of scores was quite large with respect to the four variables being measured. As a result, any conclusions regarding the predictive value of the studied variable would have to be applied with great caution to any individual case.

Undoubtedly, a certain minimum of personal adjustment, general information, academic accomplishment, and linguistic skill were needed prerequisites to successful student teaching. However, the college entrance requirements almost automatically excluded those students who fell below this minimum.

McCrorry (1966), who studied the mental, emotional, and social factors related to success in student teaching, came to the following conclusions:

1. The criterion instrument of evaluation was a reliable measure and did distinguish two groups of students with differing degrees of performance in a student teaching practicum.

2. Intelligence quotient, academic achievement, manifest anxiety and selected areas of personal-social adjustment did not significantly discriminate the highly successful from the less successful student teachers.

3. The following specific factors were related to group performance in student-teaching practicum: manifest anxiety, academic achievement, emotional stability, adjustment to reality, and leadership qualities.

4. Intelligence quotient was not related to performance in a student teaching practicum, but was significantly related to academic achievement.
5. Family relationships, social relationships, conformity and mood were not related to group performance in a student teaching practicum.

6. Experience in a student teaching practicum had the effect of appreciably altering the direction of the following test scores: greater effectiveness in social relationships, increased adjustment to reality, decreased manifest anxiety, and strengthened characteristics of conformity.

Evidence was provided for the assumption that performance in a student teaching practicum was contingent upon certain aspects of mental, emotional, and personal-social adjustment of an individual. But no evidence was provided to substantiate the assumption that if intellectually capable college students did not perform well during the student teaching experience, it might be because they were emotionally and socially ineffective in coping with the situational stress of such an experience. However, the findings did reveal a trend in this direction with reason to believe that, had the number of least successful subjects in either sample been larger, this assumption might have been confirmed.

It was concluded that in an age of intellectual and cognitive emphasis, further consideration needed to be given to personal and motivational factors which influence the individual in terms of success.

Bruno (1969) investigated the predictive value of 22 selected factors of success in elementary student teaching success. Below are her findings and conclusions:

1. Of the twenty-two predictor variables used in the study,
the six variables contained in the Pennsylvania State University Confidential Student Teacher Evaluation Form correlated significantly better with the criterion measure than any other of the independent variables. Because of the obvious superiority of the following factors: (1) written language, (2) oral language, (3) teaching skills, (4) personality, (5) professional attitude, and (6) subject matter knowledge, it would seem that earlier collection of similar information in laboratory experience prior to elementary student teaching would facilitate an early and reliable prediction of performance in elementary student teaching.

2. The information provided on the Pennsylvania State University Official Transcript regarding high-school average, high-school rank, grade-point average earned in method courses, and cumulative grade-point average preceding elementary student teaching, appeared to provide little information in the prediction of student-teaching performance.

3. The information provided on the Pennsylvania State University Profile of Academic Abilities Test appeared to contribute nothing to the prediction of performance in student teaching.

4. Statistically significant relationships were not found to exist between the criterion measures and the following variables: (1) trimester in which student teaching was undertaken, (2) area in Pennsylvania where the students taught, (3) grade level taught during student teaching.

Summary

Investigations carried out during the 1960s, 1970s, and early 1980s in the area of prediction of student-teaching success have used
factors such as academic achievement, personal characteristics, professional skills, interpersonal relationships, and psychological traits. Although the findings were not consistently significant statistically, there seemed to be some degree of agreement regarding the predictive value of certain factors of student-teaching success. Among those were some personality traits, teaching skills, professional attitudes, knowledge of subject matter, interpersonal skills, teacher planning, and communication skills.

In general, academic achievement, cultural background, and some areas of personality did not prove to be of high predictive value regarding student-teaching success. The lack of consistency with regards to significance indicates that the way is open to research in the area.

Procedures
Four hundred and fifty students in Seventh-day Adventist elementary teacher education programs were involved in this study. A data collection sheet was used for the purpose of recording information from the files of those student teachers. The data were analyzed statistically, using a multiple-regression computer program.

Hypotheses
The following hypotheses were tested:
1. There is a positive simple linear correlation between student teaching final grade (the dependent variable or criterion measure) and each of the thirty-one selected independent variables (or predictor variables) grouped under the following headings:
a. Academic achievement
b. Personal qualities
c. Professional qualities
d. Interpersonal relationships
e. Teaching skills and competencies
f. Classroom management skills
g. Moral and religious commitment (appendix A).

2. There is a multiple linear correlation between success in student teaching and:
   a. The student teacher's academic achievements, combined
   b. The student teacher's personal qualities, combined
   c. The student teacher's professional qualities, combined
   d. The student teacher's interpersonal relationships, combined
   e. The student teacher's teaching skills, combined
   f. The student teacher's classroom management skills, combined
   g. The student teacher's religious and moral commitments combined.
   h. The student teacher's academic strengths, personal qualities, professional qualities, interpersonal relationships, teaching skills and competencies, classroom management skills, religious and moral commitments, combined.

3. The best combination of factors predicting success in student teaching was also sought.

   The hypotheses are expanded in chapter III (the methodology).
Organization of the Study

The contents and sequence of this study were arranged as follows:

Chapter I enunciated the background of the study, the problem, the purpose, the significance, the assumptions, the limitations, the delimitations, and the definition of terms that occur frequently. This section also provided the theoretical framework on which this study was based, as well as a summary of the procedure followed and the hypotheses which were tested.

Chapter II reviews pertinent literature consulted for this study and research findings related to teacher effectiveness and prediction of success in student teaching.

Chapter III describes in detail the methodology and procedures used in this study. Information regarding the population, the instrumentation, the methods of data collection, recording, and analysis was given.

Chapter IV presents the data and their analysis.

Chapter V deals with the findings of the study. It includes a summary of the study, its conclusions, and recommendations.
CHAPTER II

REVIEW OF RELATED LITERATURE

Research was concerned with teaching success since the 19th century. Mursell (1954) reported a study carried out in 1873 to investigate the results obtained in town schools in Massachusetts. He suggested that successful teaching was teaching that brought results. He believed that although the methods and programs employed in schools were important, the ultimate criterion for success in teaching was results, lasting results that the learner could use and did use in life.

That concern about teaching success has increased during the last part of the 19th century and all through the 20th century. The Handbook of Research on Teaching (Gage Edition) reports a review of quantitative studies under the title, "Identifying the Effective Instructor."

Few would deny that good teaching is the focal point of any educational system. Ryans (1960) stated that if an ample supply of effective teachers could be attracted to a school, the likelihood of attaining desirable objectives would be substantial. On the other hand, if teachers were incompetent, excellent material resources in the form of buildings, equipment, and textbooks would be ineffective.

The literature reviewed for this study covers research related
to teacher effectiveness and to the prediction of student teaching success.

**Literature Related to Teacher Effectiveness**

The bodies responsible for the recruitment of teachers are interested in good teachers. And people who choose teaching as a career desire to be effective in their work. Both recruiters and prospective teachers are confronted with the question: "What is an effective teacher?" To answer this question, one has to consider the traits that contribute to making an effective and successful teacher. This major concern of those involved in education has given rise to considerable research, starting from the 1920s.

Biddle (1965) defined teacher effectiveness as the ability of a teacher to produce agreed-upon educational effects in a given situation or context.

Ryans (1965) pointed out that teaching is effective to the extent that it results in the development of the student's skills, work habits, attitudes, and values along with acceptable personal social adjustment accomplished in optimum time, and with optimum retention and transfer.

Brophy and Evertson (1976) suggest that effective teaching requires the ability to implement a large number of diagnostic, instructional, managerial, and therapeutic skills, tailoring behavior in specific contexts and situations to the specific needs of the moment. Effective teachers must not only be able to do a large number of things, they must also be able to recognize which of the many things they know how to do, apply at a given moment and be able to
follow through by performing the behavior effectively.

Some of the many and varied skills and characteristics of the effective teacher have been grouped into categories. They are presented below.

**Instructional Skills and Teacher Effectiveness**

Barr (1929) reported on a study that attempted to show the differences in teaching of so-called good and poor teachers. He made four generalizations:

1. While a number of qualitative differences in the teaching performance of good and poor teachers were found in such items as the amount of time the teacher talked, the amount of time the pupils talked, the length of the teacher's questions, the length of the pupils' responses, the rate of fact questions to thought questions, and the total number of questions, the differences were not found to be statistically significant. It could not be shown, until further evidence was secured, that they constituted valid measures of teaching success.

2. Although teaching performance was found to be highly variable, good teachers seemed to function effectively within a wide range of expenditures.

3. There were no statistically significant differences in the time expended by teachers upon such activities as the assignment, class discussion, supervised study, tests, quizzes, written work, special projects, debates, and current events as reported by teachers in time-distribution studies.

4. The most striking facts about the study were (a) the great
amount of talking done by both good and poor teachers, (b) the large amount of questions asked by both good and poor teachers, (c) the short responses made by pupils. However, Brookover et al. (1978) found that the time actually spent on instruction was related to academic outcome.

Reporting research conducted in Great Britain in the area of teachers' assessment in the classroom by Cameron and Jones (1972), Bellack (1966), Bloom (1956), Zahorik (1968), and Klein (1972), Chanan (1972) published the following summary of findings:

1. Solicitation. The teachers differed quite markedly in the range of solicitation behaviors they displayed. The teacher with the narrowest range displayed only five modes of solicitation throughout a forty-minute lesson—the most frequent mode pressed for a pupil response at the level described by Bloom (1956) as knowledge. In contrast, the teacher with the widest repertoire employed eleven modes of solicitation, giving open-ended solicitations, making various kinds of probing solicitation; i.e., those by which pupils were pressed to complete, correct, refine, or elaborate on initial responses.

Solicitations were focused largely on the most simple cognitive and affective levels. There was a relative paucity of probing solicitations. Solicitations tended to be overwhelmingly structured and specific. Rarely were pupils invited to give free comments without clear clues from the teacher. Solicitations were most frequently concerned with content or topic of the lesson and procedural affairs. Only a third of the most frequent solicitations were pedagogical, i.e., concerned with eliciting verbal and non-verbal cues of pupils' ability to keep pace with teacher exposition. No elements of social
solicitation, i.e., queries about pupils' health, family, out-of-class activities and the like, occurred.

2. Reactions. Reactions which had as their concern pupil discipline rather than the topic of the lesson were more often negative than positive. But reactions focused on lesson content were more often positive than negative. They tended to be more often simple than elaborate. The most common reactions were the critical ratings of the rightness or wrongness of pupils' responses. Most reactions were concerned with manifest content of the lesson rather than with discipline or procedure.

Even accepting the limitations of those findings, the data seemed to be consistent with those of other investigators who stated that simple memory-recall was the most common activity solicitated by teachers (Hughes, 1965). Researchers have also recorded the preponderance of positive content-based feedback (Bellack et al., 1966) and simple positive feedback (Zahorik, 1968).

Assessment acts are largely topic centered and seem to occur within brief teacher-pupil interchanges. They are rarely maintained or elaborated, for the most part on the simplest cognitive or affective levels, and featuring simple stereotypic feedback.

Bruno (1969) reported a study by Zahorik (1968) who investigated the use of feedback behavior in the teaching-learning situation. Data were obtained by analyzing transcripts of 15 elementary discussion lessons, with a feedback instrument. The results showed that teacher verbal feedback was a rigid and complex behavior. Although the teachers displayed 175 different types of feedback, they only used fifteen types with regularity.
Mitzel (1960) reported process-product studies in which investigators attempted to relate observed teacher behaviors to student outcome measures. Eleven of the strongest variables contained in those investigations were described.

1. Teacher clarity in presentations
2. Teacher use of variety during lessons
3. Teacher enthusiasm
4. Teacher behaviors orientation: task-oriented and/or businesslike
5. Student opportunity to learn criteria material
6. Teacher use of student ideas and general indirectness
7. Teacher use of criticism
8. Teacher use of structuring comments
9. Teacher types of questions asked
10. Teacher use of probing
11. Difficulty level of instruction.

Teacher use of behaviors labeled "criticism" or "control" has been one of the most frequently counted variables in process-product research. Significant negative relationship between some form of criticism were obtained in six studies. Both negative and positive relationships were obtained in two studies which employed factor analysis (Perkins, 1964; Spaulding, 1965). Significantly positive results were obtained in one study (Harris & Serwer, 1966). On the whole, there was a trend for significant negative relationships between teacher criticism and student achievement.

Investigators who have counted the use of structuring statements by teachers generally referred to statements designed to provide
an overview for what was to happen or had happened. Such statements have been identified at the start or at the end of lessons or sections of lessons.

In studies in which raters estimated the adequacy of the beginning and the ending of the lesson, there were significant correlations between ratings and criterion measures (Belgard, Rosenshine, & Gage, 1968; Fortune, 1967).

Several investigators have studied the relationship between teacher use of various types of questions and student achievement. Most investigators have used a scheme in which questions were classified in two forms: (1) lower cognitive level and (2) higher cognitive level. Significant results were reported in three studies out of seven. Of the three significant studies, high-achieving teachers asked more high cognitive level questions in one study (Kleinman, 1964), but asked fewer open-ended questions in another study (Spaulding, 1965). In the third study, the highest achieving teachers were those who mixed convergent and divergent questions (Thompson & Bowers, 1968).

Significant results were obtained in three studies in connection with probing—teacher response to student answers which encourage students to elaborate on their answers. In one investigation, the teacher elicited clarification in a non-threatening way (Spaulding, 1965). In another study (Soar, 1966), teachers were scored as encouraging interpretation, generalization, and solution by the way they questioned their students or responded to them. In the third study (Wright & Nuthall, 1970), various types of teacher responses were counted, such as redirection of the question to
another student or the asking of another question to the student who answered first. Significant results were obtained in all three studies, reported Smith (1971).

Torrance and Parent (1966), and Walberg (1969) found a clear, significant relationship between student perception of difficulty of instruction and student achievement. However, no discernible trends were found in two other investigations (Husen, 1967, & Nikoloff, 1965).

In four investigations, an attempt was made to assess the relationship between material covered in class and the class criteria score. Smith (1971) reported significant correlations between opportunity to learn and student achievement, in three of the studies.

Flanders (1970) attempted to solve the problem of defining the use of "student ideas" by dividing it into five subcategories of behaviors: (1) acknowledging the student's idea, (2) modifying it by rephrasing it, (3) applying the idea by using it to reach an inference, (4) comparing it with other students' or teachers' ideas, and (5) summarizing it. Counts of total use of student ideas and/or counts of extended use of student ideas were correlated with measures of student achievement.

Smith (1971) reported that in eight studies the use of student ideas were correlated with measures of student achievement. Rosenshine and Furst (1968) reviewed the studies carried out in the area of teacher performance criteria developed from two sources: (1) the emphasis in current literature on behavioral objectives in instruction and (2) the series of experimental studies conducted in teacher education. The results of these investigations seemed to
indicate that training procedures that focused on denotable, specific behaviors were more effective than traditional method courses in changing teacher behavior. Hence the emphasis on specifics, i.e., on performance criteria.

The relationship between the teacher behaviors advocated by educational experts has not been thoroughly investigated. One of the unfortunate consequences of this lack of substantial research in this area has been the paradox of different institutions training teachers in opposite performance criteria (Smith, 1971).

In short, investigations of the instructional skills of the effective teachers have shown no significant differences between effective and ineffective teachers, regarding the amount of time spent talking to pupils, the length of the questions they ask pupils, and the amount of time teachers spend in general classroom activities.

Effective teachers seem to have a wider repertoire of solicitations. Solicitations tend to be on the most simple cognitive and affective levels. They are structured and specific. While teachers display a large number of feedback types, only a few are used regularly. The use of student ideas by teachers, through probing questions, has been correlated with student achievement.

On the whole, teacher instructional behaviors, such as clarity of lesson presentation, variety of procedures, and enthusiasm are positively related with pupil achievement and are considered as contributing to effective teaching. However, some studies show contradictory results.
The Teacher's Relationship to People

Cornwall (1958) hypothesized that since it was important for teachers to get on well with people, there ought to be some correlation between the degree to which they got along with each other during training and their success in the classroom. He gave a series of sociometric tests to students of teacher education colleges to test his hypothesis. He found that their scores correlated +0.57 with the final student-teaching grades nearly a year and a half later.

Recommended as a result of much study (Trout, 1943) was attention to community contacts. Recognizing the importance of the social milieu, the author stated that the general education of teachers was affected by the social and institutional environment of the college or university attended. The architecture, the paintings, the campus with its views, shady trees, or winter snow were all considered as part of a total cultural atmosphere that was intentionally created. The intangible and non-material values, attitudes, and allegiances were thought to be part of every graduate of any given college, and were reflected in his/her teaching and interpretation of life. The people whom the teacher met, the contacts made with other classes or cultures, the formal parties, the games and sports engaged in, the religious exercises and programs experienced enabled the individual to know and transmit cultural heritage.

Regarding student-faculty relations, Trout (1943) recommended that attention be drawn to the matter. He was convinced that well-planned social programs could contribute to student-faculty understanding and goodwill. Instructors ought to make it their privilege to know their students as persons and personalities, and the
lives of both students and faculty members would be richer because of shared experience.

Greenhoe (1941) studied the community activities of 9120 public school teachers, 330 of whom were from the state of Michigan. Superior Michigan teachers indicated that they participated more extensively in community affairs and acted more frequently as leaders than the other teachers studied. Both the superior Michigan teachers and those in the national sample reported activities in which they were regular members and those in which they were officers.

Trout (1943) recommended that teacher training institutions make it their responsibility to develop the insight and skill essential to successful community work. Community adjustment of teachers ought to be considered in the recruitment of students of teacher education as well as in teacher training programs.

Swan (1982) reported a study on the effects of sex-match and teaching anxiety on a perception of the personal relationship in student-teaching dyads. Emphasis was placed on analyzing characteristics of the student teacher--cooperating teacher dyad. The sex-match and interaction effects were not significant. The teaching anxiety effect was significant. Student teachers with high levels of anxiety were found to have more negative perceptions of their supervisory relationship than those with low levels of anxiety.

An analysis of the results suggested that the efforts to improve the trainees' confidence in their professional competence could have a positive effect on their view of the supervisory relationship. Bell (1979) found that the relationship of the
administration with teachers appeared to be particularly important in creating a climate for pupil achievement.

Christie and Kurpius (1978) pointed out that good communication is closely related to rapport. It determines the use of feedback in decision making, which then affects climate. Silberman (1970) related qualities of trust, respect, and caring to positive climate and achievement.

Teacher-student interactions appear to be important too. Wynne (1980) pointed to the value of good relationships and non-academic events involving both faculty and students as contributing to a school's coherence. Shared activities by staff and students were thought to encourage pupils to accept the school norms (Rutter et al., 1979).

Duke and Perry (1978) noted that good student-teacher relationships were associated with both a degree of informality and good behavior. A Phi Delta Kappa study (1980) found these relationships to be associated with academic achievement. Cox (1978) reported that rapport improved when students were given responsibility in decision making.

Rutter et al. (1979) reported that the extent of opportunity students have to participate in school activities is related to achievement, as is their freedom to use the school building. Pupil success in extracurricular activities is strongly related to the likelihood that students will accept school norms.

Teacher relationships with their colleagues have been suggested as important climate variables. Wynne (1980) found that a positive school spirit (or climate) is associated with the amount of socialization among faculty.
Findings in the area of social system variables are conflicting. Rutter et al. (1979) found that the particular type of administrative organization had no significant effect on any of the following four outcome measures: achievement, attendance, behavior, and delinquency.

However, Anglin (1979) reported that organizational structure did influence teacher performance. This indirectly had an impact on student performance.

The relationship between the community and the school has been related to outcome also. Breckenbridge (1976) reported that the school climate was improved by increasing the communication and rapport between students' parents and the school.

In brief, studies and surveys of the school climate indicate that the teacher's relationships to students, colleagues, administrators, parents, and the community are correlated with a positive climate. This in turn is associated with student achievement.

The picture that emerges is that the effective teachers seem to be the ones who possess some distinct feature with regards to the way they interact with people, not only in the classroom and on the school campus, but also in the community. Certain characteristics of life within the school are recurring in the research in association with both climate and learning.

Classroom Management

Discipline and Climate

Writing about classroom management, Rich (1981) stated that discipline has long been a problem for educators. Saunders (1979) organized a survey of discipline and its related problems with the
purpose of examining the actions of pupils that prevent teachers from achieving educational ends. He concluded that teachers had to intervene when prevented from achieving legitimate objectives, and that the methods by which control is established are as important as the control itself.

Metz (1981) carried out case studies with the purpose of establishing a relationship between classroom discipline and pupil achievement. She concluded that the mission of the schools is a paradox because schools seek to educate children, while at the same time wanting to keep order. She recognized that discipline problems are reduced when students share the goals of the school and arrive at a school wanting to learn what the teachers teach.

Metz (1981) saw order as an instrumental goal or a means to achieve an educational end. After all, autonomy and education require order and routine. They are more profitably thought about together than separately. Institutions cannot exist without rules and individuals cannot be autonomous without discipline.

Raffini (1980) proposed a seven-step discipline model which he called "behavior negotiating."

1. Let students know how their behavior affects your feelings and needs.
2. Try to understand the students' feelings, thoughts and needs.
3. Help students examine the motives for their behavior.
4. Help students evaluate the results of their behavior.
5. Help students explore and select a mutually agreed alternative to the disruptive behavior.
6. Apply logical consequences when necessary.

7. Encourage and have courage.

Raffini (1980) was in favor of a humanistic rather than permissive approach, based on a feeling of respect for those being controlled. He saw the humanistic teacher as friendly, courteous, putting the students' humanity before academic requirements, and granting students a voice in their education. In case of confrontation, he suggested a method with a high probability of stopping the undesirable behavior, one that would avoid hurting the teacher-student relationship or injuring the student's self-esteem.

School climate has been studied with a multitude of variables, methodologies, theories and models. Anderson (1982) has summed up some common conclusions emerging from literature. She reported a continuum based on patterns including the following climate types: (1) open, (2) autonomous, (3) controlled, (4) familiar, (5) paternal, and (6) closed. In general, closed climates tend to have uncommitted teachers who dictate rules, are critical, and provide for few informal gatherings. Open climates tend to have staffs who are interested in their work, who cooperate with each other and with the principal, and interact frequently as well as positively with students.

Teacher morale has been associated with climate. Sargeant (1976) and Kalis (1980) found that teachers who expressed satisfaction with school tended to perceive the school climate as more open. Ellet et al. (1977) reported that teacher attitude toward work correlated with school climate as perceived by elementary students. They also reported a significant relationship between teacher morale and both attendance and achievement for elementary students. Brookover and
Lezotte (1979) reported the same relationship.

In short, literature associates classroom management skills with climate, which in turn affects pupil achievement. It seems desirable for the effective teacher to develop such qualities as understanding, caring, and respect when dealing with discipline problems so that positive teacher-pupils relationships may be maintained.

**Personality Traits and Teacher Effectiveness**

Attempts to solve the problems related to the measurement of differences between the effective and the ineffective teacher have resulted in the development of instruments designed for that specific purpose. A few of those are mentioned below.

Ryans (1960) developed a classroom observation record containing a seven-point scale of opposite pupil and teacher behaviors. Three independent patterns of teacher behavior appeared to stand out:

1. Warm, understanding, friendly vs. aloof, ego-centric, restricted
2. Responsible, businesslike, systematic vs. evading, unplanned
3. Stimulating, imaginative, surgent vs. dull, routine.

In earlier studies, Somers (1923) analyzed personality into intelligence, tact, appearance, optimism, sincerity, scholarship, sympathy, and industry. Rating teacher education students at the end of their first semester on those items, he secured from the normal-school faculty a personality measure that showed two and a half years later, a correlation of +.615, with effectiveness in the field.

Somers (1923) commented that although a good teacher might
be short of an ideal, it seemed reasonable to infer that the teacher could still possess in relatively stable form a number of the ideal teacher's qualities. The most outstanding, though not always significant, relationship found in studies of teacher effectiveness traits did not give a consistent, well-defined, and inspiring concept of the good teacher, but very diverse representations.

At the Cleveland College of Education, Odenweller (1936) studied the traits having the closest relationship to effectiveness in teaching. Effective teachers tended to score high on certain traits—to the extent represented by the following correlations:

- +0.533 in personality
- +0.307 in fitness-personality
- +0.281 in subject matter
- +0.256 in education
- +0.193 in student teaching
- +0.146 in experience.

Personality had a comparatively high relation to effectiveness, as those correlations indicate.

Odenweller (1936) concluded that a good teacher was seen as more likely to be low in intelligence than high. But even in a select group he/she stood out with a probability far greater than chance would allow as one of the finest personalities.

In 1929 Morris reported on a study whose purpose was to find data and inferences that might help to answer the questions: "Which persons should become teachers?" and "How could they be best selected?" She concluded that there was no unique blend of personality traits, both temperamental and intellectual, that are so
characteristic of the successful teacher nor so markedly different from the successful librarian or other representative, that this blend might in itself be used as a basis for selecting teachers. But there did seem to be significant differences in the subtle "balance of power" that reflects the varying degrees of certain traits as they were combined in different individuals.

Morris (1929) stated that these differences could be discovered to some extent by noting reactions to situations that called into play the "interlocking directorates" of various trait groups. Such reaction tendencies did not seem to exist in the abstract. Leadership might be a useful abstraction. But leadership did not seem to exist apart from situations in which people showed a strong or a weak ability to direct, guide, or lead. The concept of leadership was considered a useful way of referring to those forms of behavior which include broad interests, control of feelings, tactful management, readiness and ability to undertake activities (often called initiative and resourcefulness), cooperativeness, enthusiasm, sympathy, and the like. Moreover, all these terms referred to forms of behavior that might contribute to success in teaching. Therefore, reactions to a series of situations involving these tendencies as they occurred in teaching were indicative of probable success in that profession.

Indications of success in teaching were secured to some extent by the use of Trait Index L and supported by supplementary measures (Morris, 1929), including opportunities for expressing dislike or like, for reacting tactfully or not, and for interpreting situations both in terms of judgment and feeling. Scores on this index correlated with grades in student teaching when five other measures of
variability were held constant, namely, academic averages, intelligence, prejudice, tendency to approve certain acts, and health.

Trout (1943) reported a study sponsored by the Michigan State Board of Education to investigate practices successfully used in various parts of the United States and to make recommendations to the board. He wrote that Rostker (1942) had used the practical criterion of measured growth in pupils to determine teacher success. He measured pupil growth not only in knowledge and information but also in attitudes and citizenship. This enabled him to rate teachers in terms of significant and important changes produced in children. Kriner (1942), at the end of his study, concluded that teaching effectiveness could be predicted as from the criteria used by Rostker (1942). The minimum list of criteria recommended for the selection of teachers was as follows:

1. Scholarship, including general and professional field
2. Intelligence, as measured by a suitable standardized test
3. Freedom from handicap
4. Personality, including emotional balance, social poise, and character
5. Literacy, including not only the ability to read and write and to speak English correctly but also a minimum of all elementary school subjects
6. Love and understanding of children, preferably based upon actual association with them.

Witty (1950) investigated the effectiveness of teachers as evaluated by children in the classroom. He identified the characteristics of the successful teacher which children considered the most
important. Those are listed in order of frequency:

1. Cooperative democratic attitude
2. Kindliness and consideration for the individual
3. Patience
4. Wide interests
5. Pleasing personality, appearance, and manners
6. Fairness and impartiality
7. Sense of humor
8. Good disposition and consistent behavior
9. Interest in pupils' problems
10. Flexibility
11. Use of recognition and praise
12. Proficiency in teaching a particular subject.

Symonds (1955) studied the characteristics of the effective elementary teacher, as found in pupil evaluation. Three factors appeared to differentiate superior teachers from poor teachers: (1) superior teachers liked children, (2) superior teachers were personally secure and self-assured, and (3) superior teachers were well integrated.

Cattell's (1933) rating scale lists personality traits and will, intelligence, sympathy and tact, open-mindedness, and a sense of humor, in that order, as the five most important characteristics of the good teacher. Tested by Stewart (1956) and Robertson (1957) those five characteristics revealed a low level of agreement.

Fontana (1972) concluded that colleges, the length of time spent in them, one's sex, and subject discipline seemed to influence one's ideas about the good teacher. The suggestion was that a student
teacher's grade might depend to some extent upon the background factor of the college supervisor. Accepting this point of view, Fontana (1972) commented that bearing in mind that the low level of agreement did not allow a deep reading into the results of this study, it was of interest to look briefly at those attributes of the good teacher that were favored. In first place was a "knowledge of and feeling for children's emotional needs," followed by an "enduring enthusiasm for the task of teaching," and a "sound knowledge of the subject matter" and rather less to the appreciation of children's emotional needs. In the next three places were: a knowledge of the social background of the children of the class, a unified personal philosophy of life, and a ready sense of humor.

Such attributes as personal curiosity, an objective awareness of strengths and weaknesses, a confident and assured manner when dealing with children, and a knowledge of children's cognitive development were regarded of average importance. Relatively unfavored attributes were organizational ability and interest in out-of-school activities. Last of all came a willingness to put into practice accepted teaching techniques.

Yourglich (1955) was concerned with teacher and student evaluation of various qualities of the ideal teacher. The following factors seemed to stand out: ability to communicate, ability to stimulate, maturity, academic background, responsibility, sense of dedication, sense of humor, cooperativeness, dominance, appearance, friendliness, meticulousness, intelligence, individuality, health, practicality, and diligence.

Wragg (1974) thought that teachers' personality and attitudes

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were of central importance in teacher effectiveness. He stated that if the training of teachers was concerned with behavior modification, personality theory ought to be applied more in relation to behavior change than to measures of effectiveness.

Barr (1961) summarized a massive amount of American research into teacher effectiveness. He found comparatively little agreement among researchers about one single criterion of good teaching. There was no agreement even among observers rating the same teacher. He commented that studies had produced quite different groups of good teachers.

In brief, it can be said that investigations of personality traits related to teacher effectiveness cover a wide spectrum of characteristics. Results have often been contradictory. There does not seem to be a unique blend of personality traits that can distinguish the effective elementary teacher from the effective representation of other professions.

However, a number of personality traits tend to recur in research. Among them are: love for children, ability to communicate, enthusiasm, flexibility, emotional balance, ability to establish a positive class climate, and ability to maintain good relationships with students, colleagues, administrators, and students' parents.

Summary of Literature Related to Teacher Effectiveness

The problem of identifying traits related to teaching competencies is complicated by the fact that teaching effectiveness is not a clearly defined quality, commented Smith (1971). Yet there is some agreement on what constitutes effective teaching. Most educators
would agree that at least a part of what is meant by teaching competency is demonstrated when a teacher generates in pupils an enthusiasm for learning, selects and sequences learning experiences appropriate to the readiness levels of pupils, and is able to plan and implement procedures for evaluating learning.

A survey on current efforts to rethink teacher education programs revealed differences in emphasis more than disagreement concerning the attitudes of college students that should be shaped in a teacher training program. Three types of attitudinal change keep recurring in statements on recent efforts to rethink the objectives of teacher education programs:

1. The attitude of teachers toward self. Somehow, the teacher education program is expected to lead the prospective teachers to a better understanding of their own assets, beliefs and values, and to help them improve their competencies.

2. Attitudes concerned with human relationships. Such attitudes must include warmth and consciousness of cultural differences as desirable characteristics for elementary teachers (Allen & Cooper, 1969).

3. Attitudinal objectives concerned with the teaching-learning process. These objectives involve a generalized set toward the task of teaching.

The literature reviewed in connection with teacher effectiveness suggests that the area has not been conclusively researched. There is a need for more investigation of teacher effectiveness. The present study has been undertaken with this need in view, and especially in reference to Seventh-day Adventist colleges. Many of
the teacher competencies and characteristics reviewed here have been used in this investigation.

**Literature Related to Prediction of Student-Teaching Success**

Correlational techniques to measure and predict success in teaching date back to the first decade of the twentieth century. As early as 1906 studies were carried out to investigate the prediction of teaching success (Handbook of Research on Teaching, Gage, ed., 1963). As the need for more teachers continued to press all through the century, there was more and more concern about the qualifications of those who applied for teaching positions. This is evidenced by studies conducted to investigate the area.

Three trends have merged in recent years that point out the importance of carefully selecting teachers: (1) research on teacher effectiveness (Brophy, 1973; Good & Grouws, 1977) has shown that some teachers are more effective than others in achieving desired learning outcomes in children; (2) national and state evaluation studies continue to show a decline in student achievement (National Center for Educational Statistics, 1976; Wirtz, 1977); and (3) an oversupply of teachers which is expected to continue. The continuing press for excellence on the part of teachers, the large backlog of teachers, and the likelihood of fewer teachers being able to enter the profession in the years ahead combine to heighten the importance of ensuring excellence on the part of those who obtain a teaching position.

Studies pertaining to teacher selection have described the relationship between teacher characteristics and teacher success. The characteristics most commonly investigated include academic ability or
achievement, attitudes, interests, motivation, personality, relationships with people, and background experiences with children. Schalock (1979) reviewed studies and organized them around predictors of teaching success. The traits that were reviewed are considered below.

**Mental and Academic Ability as Predictor of Success in Teaching**

Berliner (1976) stated that despite the logic involved, measures of intelligence had not proven to be strong predictors of teaching success. In examining the relationship typically found between teacher performance and general academic ability by both American and British researchers, Vernon (1965) argued that higher correlations were unlikely, since teachers were relatively homogenous as to intellectual ability.

Carlile (1954) investigated the relationship between the grades of student teachers and the scores they had obtained on selected measures in the following areas: (1) intelligence, (2) teaching aptitudes, (3) scholastic achievement, (4) proficiency in basic skills, and (5) personality traits as revealed by personality inventories. In his conclusions he reported that there was a low correlation between the grades obtained in student teaching and each of the measures he used in his study.

Carlile (1954) further stated that the forecasting efficiency of each of the measures in predicting student teaching grades was low. He found them almost without value for forecasting success or failure in the teaching profession.

Darrow (1962) investigated the factors associated with teaching effectiveness in an attempt to determine the relationship
between performance in elementary student teaching and certain variables. He found that grade-point ratio for all college work proved to be one of the best predictors of student-teaching success.

Ortz (1964) found that neither academic achievement in college nor the results of personality, attitude, and the various other tests had significant value in predicting how successful a student would be as a student teacher or as a first-year teacher.

Bruno (1969) reported a study carried out in the College of Education at Bowling Green State University during the 1960-1961 school year. There were 443 seniors involved. The tests administered were: the Minnesota Multiphasic Personality Inventory, the Trigg Reading Test Survey Section, and the American Council of Education Psychological Examination.

Prior to the student-teaching experience, each student had a fifteen-minute interview with the college director of student teaching. As a result, each student was given a prediction evaluation as to probable success as a student teacher. Following the student-teaching experience, the college student was evaluated by the college supervisor and the supervising teacher. The Pearson Product-Moment Correlation method was used to determine correlations. The following conclusions were drawn:

1. Many variables were difficult to control when evaluating student teachers.

2. Academic achievement in college did not seem to have any predictive value as to student-teaching success.

3. The results from personality and teacher attitude inventories did not have any predictive value as to how successful the person would be as a teacher.
4. The best predictions of future success of a student teacher in the teaching profession, even though limited, could be made by the supervising teacher and the college supervisor. Mathis and Park (1965) attempted to determine whether it was possible to predict success in student teaching prior to the student teaching experience. Two hundred and fifty-two students of Northwestern University participated. Among the variables investigated were: (1) high-school rank, (2) college entrance examination, (3) participation in extracurricular activities, (4) grade average in methods courses, (5) prior experiences with children, (6) grade average in speech courses, and (7) interview prior to student teaching. The investigators concluded that the correlation of variables with success in student teaching were not high enough to suggest the possibility of simple predictive relationships.

When the variables were used for a multiple-correlation analysis, three emerged as possible predictors of student-teaching success: (1) participation in extracurricular activities, (2) speech course grades, and (3) pre-student teaching interview. The next best combination of success predictors included: (1) extracurricular activities, (2) speech course grades, and (3) grades obtained in professional education courses.

Pigge (1968) investigated the relationship between principals' ratings of elementary teachers and the grade point average of those teachers when they were college students. The general conclusion was that principals rated former college students whose overall grade was "A" significantly higher than they did the teachers who had made "C" scores in their college days.
Fontana (1972) reported studies to answer the questions, "What are supervisors looking for when assessing teaching? To what extent are they agreed on criteria? What is the correlation, if any, between student teachers' grades and the grades earned in the rest of the teacher education courses?" Studies were grouped in two categories: (1) follow-up studies and (2) predictive studies.

In the follow-up studies, researchers compared the final student-teaching grades with grades awarded by principals after a few years of teaching. Evidence tended to be conflicting. Wiseman and Start (1965) concluded that it was difficult to see with what the professional course was associated. It was certainly not with promotion, principals' assessment, or satisfaction in the teaching profession.

Regarding predictive studies, the investigators were looking for correlations between the final student-teaching grade and measures of knowledge, personality, and attitudes in an attempt to construct a profile of successful student teachers. Such studies have been numerous but unsuccessful, both in England and the United States, in linking good teaching grades consistently with any known factor of student-teacher attitude, cognition, or personality (Chanan, 1972).

In short, studies carried out to investigate relationship between intelligence test scores and success in student teaching have shown very low or no correlation. It can be said that in general, investigators who have attempted to relate college grades with student-teaching success have not obtained significant correlations, although in one study speech courses grades and professional education course grades were included in a "best-subset" of success predictors.
On the basis of the studies cited, intelligence and academic abilities do not seem to be good predictors of student-teaching success.

**Personal Characteristics as Predictors of Success**

Mevarech (1982) reported a study of the creative entry behaviors of teacher education students, focusing on the prediction of student-teaching success in a college in Israel. The study used creativity in comparison with predictions of academic success. Results showed that the measure of creative-entry behavior was the strongest predictor of practice teaching grades (r = .37; P < .001) but the weakest predictor of curriculum subject grade (r = .08).

Discussing his findings, Mevarech (1982) suggested that the most creative student teachers could discover the appropriate technique to get their pupils through the lessons taught. But the less creative tended to rely on practices that had been used before.

Cortis (1968) used creativity tests as well as personality tests and attempted to relate the scores to practical teaching grades, theory marks, and academic subject marks of college students. He concluded that student-teaching grades did not correlate significantly with any of the cognitive variables. This seemed to indicate that teaching skills bore no direct relationship with cognitive ability.

Asked to identify the traits that make a good teacher, teachers invariably mentioned personal characteristics such as interest, attitude, flexibility, and ability to relate to others (Berliner, 1977). Traits such as warmth, sensitivity, and tough-mindedness as well as teaching styles of one kind or another also
received frequent mention. However, results coming from an extended line of inquiry have been disappointing. Starting with the earliest studies of Whitney (1924) and extending through the well-known studies of Barr (1948), Guilford (1959), and Ryans (1960), only weak if any relationships have been found between personal characteristics and measures of teaching success.

While subject to the limitations of earlier research involving teacher characteristics, the results of research on the concept of flexibility or adaptability have been at least consistent. According to Berliner (1979), the concept had the added advantage of including within it an estimate of the responsiveness of teachers to the differential demands of instructional settings. Whether flexibility had sufficient power to predict the success of teachers across settings remained to be proved. The close parallel between this line of research and research that has been undertaken in connection with the effect of classroom climates on learning (Wallen & Travers, 1963) has given added support to the potential utility of the flexibility or adaptability construct.

According to Wragg (1974), attempts to modify teacher training programs ought to take into consideration all available information regarding student teachers' attitudes, anxieties, motives, personality traits and, most importantly, their classroom behaviors. Reporting a review of research, Wragg (1974) stated that the social background of student teachers had been the subject of a number of investigations.

Flout and Scott (1961) showed that the social origins of teachers in various schools were significantly different. A high percentage of recruits came from working-class families in both
universities and colleges of education, as well as in primary and secondary modern schools in Great Britain.

In the United States, Wright and Tuska (1966) made a comparison between student teachers and other college students of similar age and background and found that the student teachers were more likely than other students to recall the influence of a particular teacher, and to feel great admiration for that teacher. The researcher's conclusion was that identification with teachers by children was likely to be a considerable influence in their eventual choice of teaching as a career.

Phillips (1953) examined the use of English and I.Q. tests in considering students for teacher training. His analysis showed little relation between test results and eventual success.

Burroughs (1958) used factor analysis to investigate admission procedures and reached the conclusion that the interview was as good a predictor of eventual teacher success as most other measures. Final teaching marks were predicted by the rating of observable features of applicants, their powers of self-expression, and intellectual maturity.

Halliwell (1965), in the course of investigating the selection procedures in a college of education, supported Burrough's finding that the interview was the most successful means of selecting teacher education students.

Rosenshine (1970) reported significant results relating teacher enthusiasm to pupil achievement. He commented that although the specific low-inference behaviors that comprise enthusiasm had not been identified yet, the results suggested that movement, gesture, and
voice inflections comprise at least part of that variable.

Amidon and Giammateo (1965) conducted an investigation involving 153 elementary-school teachers, in which school administrators and supervisors identified thirty-three teachers as superior. The teachers were observed by trained observers who used the Flanders system of interaction analysis. The results of this study indicated that the verbal-behavior patterns of the superior teacher differed markedly from those of the average teacher. The superior teacher talked less than the average teacher and operated in a pronounced pupil-centered climate; whereas the average teacher operated in a more teacher-centered climate.

Tarpey (1965) looked at the selection procedures in four Irish colleges of education. He found no correlations between I.Q. test scores administered to new college entrants and the final student-teaching grades.

Robertson (1957) studied the attributes of successful student teachers. He found considerable agreement among supervisors. He listed extroversion, ability to organize, good relations with others, equable temperament, vitality, sense of proportion, social acceptability, active attitude, cheerfulness, persistence, imagination, enthusiasm for subjects taught, and tolerance as attributes of student-teaching success. Smith (1971) found significant correlations between teacher flexibility and abundance of teaching materials and pupil achievement.

Mann (1961) used a large battery of tests of personality, intelligence, habits, and attitudes in an attempt to identify factors influencing success in a teacher education college. He found significant correlations between student-teaching practice and a number of
variables. Those included good financial status of the student teacher's family, his/her physical stature, vitality, diligence, dependability, individuality, health, and practicality.

In brief, the area of personal characteristics as related to teaching success has been widely investigated. Results have been conflicting. Traits associated with student teachers' attitudes toward teaching, their motives for entering the profession, and factors of flexibility, adaptability, dependability, enthusiasm, and ability to relate to others tend to be associated with success.

**Ability to Motivate Students as a Predictor of Success**

Cohen (1983) stated that the first level personal commitment to the principles of motivation change is guided by the dictum that, to help someone else become more motivated, a person must first understand his/her own motives. Motivation cannot be imposed or required. It is actively chosen as a goal worth striving for.

According to McClelland and Winter (1971), the person motivated by a strong need to achieve sets moderate goals, appreciates and uses concrete feedback to assess and formulate his/her actions, takes initiative, and prefers situations where he/she can be in control of events and assume responsibility for them. These characteristics may be expected to be found in prospective teachers who are contemplating a successful teaching career.

Research has attempted to relate attitude toward the teaching profession and toward the people involved in school activities with success. It is hypothesized that a positive attitude toward the profession is a motivator for successful teaching.
Several investigators have attempted to measure college student attitudes in the course of teacher training. Thymme-Gouda (1948) found students of four teacher training colleges complaining about the course. They felt student teaching imposed a considerable strain on them. Later work has often substantiated their findings, but sometimes contradicted them.

Charlton, Stewart, and Paffard (1958) found that their sample of graduates welcomed student-teaching practice. They felt that the practice should be based on sound theoretical principles.

When Shipman (1965) investigated the attitudes of various groups of student teachers in a college, he discovered that the secondary student-teacher group was more academically oriented than the elementary group. This study suggested a steady continuum according to the age-group being taught, ranging from a more child-centered attitude at one end, expressed by those preparing to teach the youngest children, to a more subject-centered attitude at the other end, in those preparing to teach in secondary schools.

Williams (1963) looked at the attitudes to their own training of a very large sample of student teachers, newly appointed teachers, and experienced teachers. Student teachers ranked student teaching as the most important part of their training, whereas experienced teachers ranked teaching methods highest. Davies (1965), summarizing American research into student teaching and the attitudes of student teachers, also found that teaching practice was the most strongly approved part of the course.

A study by Evans (1958) was designed to measure student teachers' attitudes towards the actual day-to-day job of teaching. She
constructed a test called "A Teacher's Day" and found no correlation between scores on the test and the final teaching grade. She did find a significant negative correlation between the interest scores and intelligence test scores, which led her to conclude that it was not the most intelligent who were the most favorably inclined to teaching—and in addition, the over-enthusiastic students should be regarded with suspicion.

Yeager (1935) reported an investigation to answer two questions: (1) How did high-school seniors interested in teaching compare with high-school seniors in general? (2) How did high-school seniors interested in teaching compare with high-school seniors interested in other vocations? The measured traits were: socioeconomic status, intelligence, scholarship, and personality. The results indicated the following:

1. High-school seniors interested in teaching were about average or slightly above average in socioeconomic status, intelligence, scholarship, and personality.

2. Teacher training institutions could expect to receive as candidates for admission individuals who had not been particularly outstanding as high-school seniors.

3. A favorable attitude toward teachers and the teaching profession was desirable in those persons who contemplated following the profession.

With regard to personality, the teaching preference group was more stable emotionally and more dominant in face-to-face situations. With regard to leadership, those high-school seniors who were interested in the teaching profession were more likely to have been
prominent in extra-curricular activities.

Shipman (1965) found in follow-up studies of student teachers that their expressed attitudes were no longer similar to those of their college days when they tended to model their college professors. They had moved toward the attitudes expressed by the majority of the teachers of the schools in which they were working.

Motives for entering the teaching profession have been investigated as early as 1934 (Valentine). Wragg (1968) investigated a group of ninety post-graduate students and found that the most popular motives given were "love for children" and "love of subject taught." Salary, parental wish, and security were barely mentioned.

Altman (1967) investigated the motives of mature student teachers for leaving other occupations and taking up teaching. He found that usually they were reasonably successful and satisfied with the middle-class or lower-class job, even though many were from working-class backgrounds. They were attracted to teaching—although it did not offer as good a salary as other jobs—because it offered opportunity to be creative and original. They rated "opportunity to help others" first on a list of ten alternatives and "attractive salary" much lower.

In short, literature suggests that a positive attitude toward the teaching profession and interest in children are motivators of dedicated and effective work in the classroom.

The area of attitude change appears to be one in which most of the research agrees. Broadly speaking, attitudes show a movement toward child-centeredness during teacher training—this being influenced by the views held by college instructors and/or cooperating
teachers. But new teachers tend to adopt the attitudes of their school colleagues later.

The Ability to Engage Students in Learning as Predictor of Teaching Success

A number of studies that have focused on the relationship between teacher performance and pupil learning have found that the time spent by students engaged in learning was often a better predictor of attainment than the use of particular behavior or the performance of particular functions by teachers (McDonald & Elias, 1976; Stallings & Kaskowitz, 1974). In a study of 150 follow-through classrooms in the first and third grades, it was found that in over 100 cases there were significant correlations between classroom activities and learner gain in reading and mathematics. The highest correlations were obtained for the length of time pupils spent in learning related to those subjects. Bloom (1976) consistently found high positive correlations between measures of learner attention and learning.

Solomon and Kendall (1976) found the elementary pupils in classrooms characterized as "academically-focused" or "task-oriented" typically reflected higher achievement than pupils in classrooms not so oriented. On the basis of findings such as these, the ability of teachers to engage learners actively in learning tasks could be viewed as one of the most promising predictors yet to be identified by researchers concerned with the issue of teacher success.

Time was also highlighted within the concept of mastery learning, and research cited by Bloom (1976) showed clearly the close relationship between time observed for learning and achievement.
Fisher et al. (1978) designed an evaluation study specifically around a mode of school learning that had academic learning time at its center. In spite of the logic and the considerable amount of data that suggested the importance of academically engaged time as a predictor of academic attainment, the results of the study indicated that it was no better predictor of teacher performance. In fact, taken by itself, time engaged in learning accounts for very little of the variance in academic attainment in the elementary grades.

The emerging focus on academic engaged time as an important variable within the learning process has helped put into perspective the issue of classroom management. Berliner (1976) stated that of all issues that confront teacher educators, the twin concern over classroom management and discipline was probably the most pervasive. While effective management procedures could in no way assure learning on the part of pupils, their importance seemed to lie in a set of conditions necessary for learning. The finding of Kounin (1970) on the close relationship between management procedures that teachers use and work involvement on the part of learners was subsequently verified by Brophy and Evertson (1976). Borg, Langer, and Wilson (1975) illustrated the value that could be gained by preparing teachers in effective classroom-management procedures.

McGrath (1950) investigated the problems facing student teachers during their practicum. He found that student teachers stressed problems such as adjusting to individual needs, getting to know children better, getting children to work, and lack of time to consult with experienced teachers or even the cooperating teacher. Much of this was supported by Wragg (1967), who found that the student
teacher's greatest hope for teaching practice was to be able to arouse and maintain interest, and the greatest anxiety was over class control.

In summary, investigations of teachers' ability to engage students in learning activities tend to be correlated with successful teaching. Effective classroom management which includes the ability to arouse and maintain interest and the time pupils are involved in actual learning seems to be positively correlated with pupil achievement.

Work Samples as Predictors of Teacher Success

In the industrial world and in the military the use of real life-work conditions known as "work samples" have been widely employed to predict job performance (Campbell & Bray, 1966; Ghiselli, 1966; MacKinnon, 1979). Work samples as predictors of success have also been widely used in teacher preparation in the form of student teaching, although the student teaching experience has rarely been thought of in these terms. The question of using the performance of student teachers to predict the performance of full-fledged teachers has not been researched extensively, surprising as it may seem. However, the few studies that have been carried out have found performance as a student teacher to be a reasonably good predictor of teacher success.

Ducharme (1970) found the relationships between college and school supervisor ratings of student-teaching performance, and principals' ratings of first- and second-year teaching performance to range from .48 to .59, all significant at or beyond the .01 level of confidence. Collins (1959) reported similar findings. Kennedy and Gowan
(1961) have reported somewhat lower but still significant correlations. Ducharme (1970) also found correlations between ratings of student-teacher performance and pupil achievement in reading and mathematics to range from .25 to .30 at the .05 level of confidence.

A related finding was the tendency of persons who perform relatively poorly as student teachers, and who still receive a teacher certificate to either fail to obtain a position as a teacher or to drop out of the teaching ranks after one or two years of teaching experience. Beery (1962), Collins (1964), and Nilsen (1979) all reported such findings.

A common theme in studies that have looked at the relationship between performance as a student teacher and performance as an on-the-job teacher were references to the interdependence of the context in which teaching occurred and the quality of performance observed. Tudhope (1942) found that where discrepancies occurred between performance in student teaching and subsequent performance as a teacher, the ages of children taught during student teaching were very different from those taught as a practicing teacher.

In a two-year follow-up study of beginning elementary teachers in thirteen Indiana school districts, Turner (1965) found that changes in teaching skills in arithmetic and reading were primarily a function of the amount of supervision of the beginning teacher. The amount of supervision depended on the type of community in which the teacher was employed. As in the case of performance of individual teaching skills or the impact of individual skills on pupil learning, the quality of job performance appeared to depend on the nature of the setting in which the job was being performed. Apparently teacher effectiveness
would be the situation specific, no matter what criterion were used as a measure of effectiveness (Berliner, 1977).

Briefly, the result of the studies reported above seem to imply that work samples offer a great deal of promise. A form of work sample was obtained in essentially all teacher preparation programs—the student-teaching experience. When careful assessment procedures were used, performance under those conditions appeared to predict performance in the early years of teaching about as well as any of the measures of teaching performance that have emerged from research since the late 1950s.

Berliner (1977) recognized that the assessment of performance of student teaching was still at a relatively primitive stage. Consequently, the concept of work samples within the context of teacher education would appear to warrant further exploration.

The School Climate as Predictor of Teaching Success

There has been sufficient evidence to show that the nature of the school and the community within which teachers work interact powerfully with teacher effects, serving to enhance, facilitate, block, or neutralize the contribution that any teacher can make to pupil learning. On the basis of the evidence emerging on the contribution of peer group, school, and community variables to pupil attainment, it is likely that pupil learning is as much a function of the broad dimensions of a school context as it is of the performance of teachers.

One of the most striking recent studies reported was that of Brookover (1978) on elementary-school social climates and school
achievement. The study involved fourth and fifth graders from ninety-eight elementary schools in Michigan—a representative state sample of elementary schools. The dependent variable was the mean achievement of fourth-grade students on the objective reference tests in reading and mathematics administered annually by the State Department of Education. School-climate measures were obtained from all fourth and fifth graders in the schools studied and the principal of each school. These measures focused on norms, expectations, and beliefs about academic matters.

Through a series of regression analyses, the school-climate variables emerged as powerfully accounting for between-school differences in mathematics and reading achievement. Although some variance in school climate was found to exist between classrooms, the within-school differences were found to be sufficiently small that a "characteristic" climate of a school tended to be the rule. These findings were supported by other research: Mitchell (1967), McDill, Rigsby and Meyers (1969), McDill and Rigsby (1973).

Of the climate variables measured, three accounted for 68 percent of the between-school variance in mean achievement for the total state sample. These involved two student measures and one teacher measure. The student measures carried the labels, respectively, of "sense of academic futility" and "perception of present evaluations and expectations" which teachers hold for students.

The teacher measure carried the label "present evaluations and expectations for students." Of the three variables, student sense of futility was by far the most powerful variable, accounting for 59 percent by itself of the total variance in mean school achievement.
between schools. A school characterized by a high sense of academic futility was one in which students felt they had no control over their success or failure in the school social system; teachers did not seem to care whether students succeeded or not, and fellow students punished the successful ones. High futility was indicative of a high degree of hopelessness in the school situation, whereas low futility was a feeling that the system could be mastered (Brookover et al., 1978).

Another line of inquiry that had appeared in the school-effects literature was represented by Bossert (1979) on "activity structures." Bossert stated that an activity-structured perspective centers attention on the social organization of learning contexts. It rests on the observation that teachers and students make judgments about themselves and others, interact and form social ties, and experience social sanctions within the context of recurrent activities. The structure of activities shapes the student's experience to curricular contents, to the distribution and uses of resources, to the pedagogical decisions that teachers make, to the meaning and effect of social influence, and to the exercise of teacher control. These, in turn, affect what children learn.

In his empirical work Bossert (1979) found that both classroom friendship networks and patterns of control behavior on the part of the teacher were heavily influenced by the activity structure of the classroom. The type of authority exercised by the teachers also appeared to vary with the type of activity being pursued, independently of teacher characteristics.

To sum up research regarding the use of school effects by
teachers, it can be said that although it seems unclear, it does represent a body of knowledge that teachers can act upon and ought to understand. Literature suggests the need for student teachers to become aware of the various factors that operate within a school setting that influence the nature and effectiveness of the learning taking place within the classroom. Student teachers also need to acquire the skills to marshall those factors in support of pupil learning.

According to Schalock (1979), obtaining evidence that prospective teachers are able to act upon those factors represents one of the major challenges to teacher education in years ahead.

Knowledge and Skills Related to Teaching as a Predictor of Teaching Success

Berliner (1974) stated that the logic of teacher preparation called for prospective teachers to be knowledgeable in both principles and content to be taught as well as procedures used in conveying content to learners. It follows then that the more knowledgeable teachers are, the more successful they ought to be.

For all its logic, little research has been published on the relationship between knowledge pertaining to teaching and success as a teacher. Menges (1975) stated that results were similar to those in other professions. While it appeared that knowledge of content to be taught and knowledge of methods used in teaching contents to others were necessary for success in teaching, it was also apparent that knowledge alone was not sufficient for success.

Regarding the skills related to teaching, Wilk and Cook (1963) said that in addition to providing the knowledge base presumed to be
needed to function effectively as a teacher, teacher preparation was also responsible for providing the skills assumed to be needed by teachers. The performance or competency-based teacher-preparation movement, at least in programs where competencies to be attained referred to the performance of specific teaching skills, had given added emphasis to the prominence of skill development in the teacher-preparation process. All the efforts seemed to rest on the assumption that the demonstrated ability to perform the needed skills would increase the probability of teaching success (Gage & Winne, 1975).

The hypothesis that teachers who demonstrate mastery of a particular set of teaching skills would be more successful than those who did not have such skills, gave direction to much of the research undertaken during the 1960s. But, according to Copeland (1975), this hypothesis did not seem to receive strong support. Investigating microteaching, he found that the teaching skills obtained through micro teaching did not carry over to the ongoing classroom setting after teacher training was completed.

In a more recent study, Copeland (1977) reaffirmed these findings. He was able to show, however, that when initial skill training through micro teaching was supplemented during student teaching by supervision in skill application on the repeated exhibition of the target skill by a classroom supervisor, a statistically significant difference in the use of the target skill in ongoing classroom settings was brought about. Individual student teachers varied a great deal in their use of the target skill. So caution was recommended in the use of Copeland's findings.
Brophy and Evertson (1976) stated that effective teachers were expected not only to know a large number of things but also to recognize which of the many things they knew, applied at a given moment. They ought also to be able to follow through by performing the behavior effectively.

One way of thinking about teacher performance that has the potential of overcoming the limitations inherent in specific teaching behaviors or skills is to think in terms of the "functions" teachers perform, i.e., the "meaningful segments" of work performed within a role definition (Burke et al., 1975).

Two major investigations into successful teaching have employed the concept of teaching functions. In his book "Human Characteristics and School Learning, Bloom (1976) reported these studies. The functions he used in his review were:

1. The provision of cues to pupils as to what had to be learned and how they were to proceed with learning tasks
2. The involvement of learners in the actual learning process, which Bloom labeled "participation"
3. The provision of reinforcement for participation in the learning process
4. The provision of feedback that permits a learner to make needed adjustments to his/her responses to a learning task.

On the basis of the various sets of data Bloom (1976) reviewed, he estimated that no more than 20 to 25 percent of the variance in learner attainment was likely to be accounted for by what he referred to as quality of instruction (the use of cues, reinforcement, active participation, and feedback). On the basis of parallel
literature reviews, he estimated that at least 50 percent of the variance could be accounted for by the aptitudes and prior learning achievements that learners brought to a particular learning experience termed "cognitive entry" characteristics. Another 10 to 20 percent could be attributed to the interests, attitudes, and perception of competence that learners brought to the experience, or the "affective entry" characteristics.

While these estimates clearly acknowledged that teachers could make a difference in pupil learning, they also pointed with great clarity to the limits of the difference teachers are likely to make, even when functioning optimally as facilitators of the learning process. What learners brought to a particular learning experience tended to determine to a large extent what they took from it.

Apart from studies carried out by Bloom, the data reported in Human Characteristics and School Learning (1976) have been used by investigators with widely varying research designs, measures, and populations of learners.

The California Beginning Teacher Evaluation Study (B.T.E.S.) (Fisher et al., 1978) was designed explicitly to overcome the limitations inherent in most of the studies reported by Bloom. It was also undertaken with the expressed purpose of providing a data base for planning teacher-preparation programs. According to Berliner (1979), the B.T.E.S. represented a landmark for teacher education.

The study focused on five instructional functions: diagnosis, prescription, presentation, monitoring, and feedback. It employed especially constructed measures of these functions. Other special features included linking measures of teacher performance and measures
of learning gain to individual learners. The study was focused on two elementary grades, second and fifth, and two subject areas, reading and mathematics. It also used the most sensitive and sophisticated statistical procedures in the analysis of the data.

In spite of all its sophistication, the B.T.E.S. study failed to solve the dilemma faced by teacher educators in looking to research on teacher effectiveness as a guide to teacher selection. None of the various measures taken of teacher diagnosis and prescription practices was found to relate consistently to measures of attainment in both reading and mathematics, across both grade levels. Nor did any of the measures taken on teacher presentation, monitoring, and feedback.

One measure of teacher diagnostic ability did prove to relate significantly to achievement in both subjects and in both grades. A measure of the extent to which teachers are aware of individual differences in the needs of pupils correlated significantly with achievement in mathematics in both grades. But it showed no relationship to achievement in reading at either grade level. Academic feedback was found to relate significantly to achievement in both subjects in grade two, but not in grade five.

The extent to which teachers planned instructional activities around specific goals to be attained— one of the prescriptive measures in the study—correlated significantly with reading scores obtained in grade five, and approached significance with reading attainment in grade two. It was unrelated to attainment in mathematics at either grade level.

None of the measures taken on teacher presentation and
monitoring was found to relate significantly to achievement in more than one content area at one grade level.

From the point of view of teacher educators concerned with criteria for the selection of prospective teachers and criteria by which to recommend teachers for certification, data from Phase III-B of the B.T.E.S. study were more encouraging. A clear statement by teachers of the goals of instruction, as well as directions about procedures and activities that learners were to pursue in achieving these goals, correlated significantly with engaged time in mathematics with both the second and fifth grade levels, but were unrelated to engaged time in reading at both grade levels.

One of the general classroom characteristic measures taken in the study, teacher attention to and support for the affective dimensions of the classroom (e.g., the acceptance of pupil feelings, effort to maintain conviviality, and value placed on affective outcomes), were found to correlate consistently with engaged time in both subjects and at both grade levels. However, this orientation to affect was negatively correlated with engagement time. A general estimate of the competence of a teacher with respect to the subject matter being taught, correlated .60 with the time engaged in reading and .71 in mathematics in the fifth grade, but only .11 and -.05, respectively, in the second grade.

On the basis of the B.T.E.S. data and the data reviewed by Bloom (1976) the following is deduced: the prospects for finding stable relationships between learner attainment and the ability of teachers to perform designated teaching functions seem to be better than the prospects for finding stable relationships between learner attainment in specific teaching skills or behaviors.
Gage (1977) argued that it would be surprising if any single teacher variable by itself accounted for any substantial portion of the variance in pupil achievement or attitude, even if teachers were able to effectively adapt their behaviors to accommodate differences in learners, outcomes to be achieved, and the context in which instruction occurred. Commenting on Gage's point of view expressed above, Berliner (1979) stated that if knowledge and skills related to teaching were not in fact good predictors of success in teaching, they ought not to be used in recommending teachers for certification.

Turner (1963) used a test which had been shown to correlate with student gains over a two-year period. Training in method courses and a period of teaching practice produced higher scores from student teachers on Turner's tests. He inferred that it was likely that student teachers would produce higher achievement gains as a result of teaching practice following teaching methods courses.

Joyce and Harootunian (1964) questioned student teachers to find out how they determined their objectives and planned their lessons. They concluded that nearly all decision-making processes had little to do with rationalized educational theory. Lessons rarely had objectives, and methods were intuitively arrived at. Most lessons were reflections of the cooperating teacher and of current practice in the school. The writers inferred that student teachers tended to borrow the practices they saw rather than creating original tactics.

Surprisingly little research has been done on the relationship between prior experience with children and teaching success. And what has been done has produced conflicting results (Berliner, 1979).

In support of such a relationship, Ryans (1960) found that
teachers who reported having engaged in activities such as "playing with children," "reading to children," and "looking after a class for the teacher" attained higher scores on measures of responsibility, the use of stimulating classroom procedures, and the use of democratic classroom procedures and favorable attitudes toward pupils than teachers who had not engaged in such activities previously.

Ducharme (1970) found that preservice experience with children predicted principals' ratings of teaching performance in first and second-year teachers almost as well as in student teachers. However, studies at the Oregon College of Education did not support those findings. In three replications, no consistent relationships were found between work experience with children prior to entering the elementary-teacher preparation program and success in three to five days of full responsibility teaching.

In short, research undertaken to establish relationships between knowledge of content to be taught as well as knowledge of teaching methods and successful teaching indicated that knowledge alone did not appear sufficient to ensure success.

Regarding the relationships between teaching skills and successful teaching, studies showed that skills obtained through micro teaching did not carry over to the regular classroom setting. Effective learning seemed to be the product of both quality of instruction and pupils' cognitive entry characteristics.

**Summary of Literature Related to the Prediction of Student Teaching Success**

In brief, related literature revealed that much consideration had been given to the problem of relating student-teaching success
with teacher characteristics in various areas so as to build up criteria that would predict a successful student-teaching experience. Among the areas reviewed for this study were: the student teachers' academic achievement, personal qualities, professional qualities, relationships with people, teaching as well as classroom management skills. This study investigated those areas to find out whether they were correlated with student teaching success.

Literature indicated that instruments and techniques had been developed for measuring teacher traits, and inferring their value as predictors of teacher effectiveness. A number of studies looked at predictors of teaching success.

However, the area of student-teaching success itself had not been widely investigated. Furthermore, the investigations done had not yielded consistent results. On the basis of the literature reviewed for this study, it is evident that more research needs to be done in connection with the prediction of student-teaching success, so that measurable criteria may be built for an effective preparation of student teachers and a successful student-teaching experience. On the whole, the review of literature emphasized the need for investigating the predictors of student-teaching success, selected for this study.
CHAPTER III

METHODOLOGY

The purpose of this study, as stated in the first chapter, was to determine the relationships between selected factors or predictors and success in student teaching. Of the thirty-two variables used in the study, the first one—the final grade obtained by student teachers at the end of their experience—was used as the dependent variable or criterion. The other thirty-one variables were the independent variables or predictors of student-teacher success which were tested against the criterion.

An analysis was done to find out whether those thirty-one variables could, individually or in combination, predict success in elementary student teaching in the selected Seventh-day Adventist colleges.

Population

The subjects for this study consisted of 450 students in elementary teacher education programs who completed their student-teaching experience during one of the seven academic years beginning with the 1976 Fall quarter and ending with the 1983 Spring quarter in the following Seventh-day Adventist institutions: Andrews University, Michigan; Southern Adventist College, Tennessee; Atlantic Union College, Massachusetts; and Columbia Union College, Washington, D.C.
Only the Fall, Winter, and Spring quarters were considered, because although the selected colleges were in session during the Summer quarter, student teachers could not be assigned to elementary schools in Summer.

Although all the student teachers who were assigned to teach at either the primary (K-3) or intermediate (4-6) grade levels were given the opportunity to be used as subjects in this study, only those in whose files complete data were available for the purpose of the study were included.

**Procedures**

The research in this study consisted of the collection of information on each of the 450 elementary student teachers included in this investigation. Authorization to collect data was obtained from the Chairman of the Education Department, the Director of Teacher Education, and the Office of Admission and Records of each of the colleges participating in the study. Data were gathered from the files of the 450 subjects involved in the study.

**Description and Manipulation of Data for Analysis**

For the purpose of the statistical treatment, all data entered in letter form on student teacher files had to be converted into numerical form. The subjects were graded on a continuum, for each variable, as illustrated below:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>5</td>
</tr>
<tr>
<td>V. Good</td>
<td>4</td>
</tr>
<tr>
<td>Good (B+, B)</td>
<td>3</td>
</tr>
<tr>
<td>Insufficient</td>
<td>2</td>
</tr>
<tr>
<td>Poor (C-, D)</td>
<td>1</td>
</tr>
</tbody>
</table>
It was recognized that this conversion could result in the loss of some amount of precision. However, the need to transform data to a more manipulatable form dictated this procedure.

**Instrumentation**

A data collection form was developed and used for recording information from the files of student teachers involved in this investigation. It made provision for the thirty-two variables used for the purpose of the study, the subject number (no names were used), and symbols to represent the level of achievement reached by the subjects in each of the thirty-two variables.

The variables were selected from student-teacher evaluation blanks obtained from the four Seventh-day Adventist colleges participating in the study. The number of variables was restricted to thirty-two because only those areas of evaluation that appeared on the evaluation blanks of all four colleges could be used for the purpose of the investigation.

**The Variables**

Of the thirty-two variables used in this study, the first one was used as the dependent variable. The other thirty-one, numbered 2 to 32, were the independent variables.

**The Dependent Variable (or Criterion Measure)**

1. The final grade obtained by the subjects at the end of their student-teaching experience and as it appeared on the evaluation form was used as the criterion against which the other thirty-one variables or predictors were tested for correlation. The subjects were rated on a 5 to 1 scale: 5 high -- 1 low.
<table>
<thead>
<tr>
<th>Actual Grade</th>
<th>Grade Point Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5</td>
</tr>
<tr>
<td>A-</td>
<td>4</td>
</tr>
<tr>
<td>B+, B</td>
<td>3</td>
</tr>
<tr>
<td>B-, C+, C</td>
<td>2</td>
</tr>
<tr>
<td>C-, D and below</td>
<td>1</td>
</tr>
</tbody>
</table>

The Independent Variables (or Predictor Measures)

The subjects were again rated on a 5 to 1 scale (5 high -- 1 low) on the basis of their achievement in selected areas appearing on the evaluation blanks in their files. The variables considered for student teachers were:

Academic achievement:
2. College grade-point average (G.P.A.)
3. Teacher education courses G.P.A.

Personal Qualities:
4. Enthusiasm in class
5. Health and alertness
6. Dependability and sense of responsibility
7. Emotional balance

Professional Qualities
8. Voice and ability to communicate
9. Personal appearance and dress
10. Motivation as a teacher
11. Willingness to cooperate
12. Readiness to accept criticism
13. Regularity and punctuality
Interpersonal Relationships:

15. The way the student teacher relates to pupils
16. The way the student teacher relates to associates
17. The way the student teacher relates to administrators
18. The way the student teacher relates to pupils' parents and to the school community

Teaching Skills and Competencies

19. Knowledge of subject matter
20. Ability to plan and organize class activities
21. Resourcefulness and initiative in finding information and materials
22. Efficiency in presenting information and materials
23. Fairness and consistency in evaluating pupils' work
24. Efficiency in providing feedback to pupils
25. Ability to discover pupils' needs and attend to those needs

Classroom Management

26. Ability to maintain discipline
27. Fairness in the treatment of pupils
28. Ability to manage unexpected situations
29. Efficiency in upholding school policy
30. Ability to obtain pupil cooperation

Moral and Religious Commitment

31. Upholding of moral standards
32. Transfer of religious beliefs into subject matter
The Hypotheses

The following hypotheses presented in null form were tested:

**Hypothesis 1**

1. There is no positive simple linear correlation between student teaching success—the dependent variable—and each of the independent variables listed below:
   2. College G.P.A.
   3. Education courses G.P.A.
   4. Enthusiasm
   5. Health and alertness
   6. Dependability and sense of responsibility
   7. Emotional balance and poise
   8. Voice and ability to communicate
   9. Personal appearance and dress
   10. Motivation as a teacher
   11. Willingness to cooperate
   12. Readiness to accept criticism
   13. Regularity and punctuality
   14. Ability to establish a class climate favorable to learning
   15. How the student teacher relates to pupils
   16. How the student teacher relates to associates
   17. How the student teacher relates to administrators
   18. How the student teacher relates to pupils' parents and the school community
   19. Knowledge of subject-matter
   20. Ability to plan and organize class activities
21. Resourcefulness and initiative in finding information and materials
22. Efficiency in presenting information and materials
23. Fairness and consistency in evaluating pupils' work
24. Efficiency in providing feedback to pupils
25. Ability to discover individual pupils' needs and to attend to those needs
26. Ability to maintain discipline
27. Fairness in the treatment of pupils
28. Ability to manage unexpected situations
29. Efficiency in upholding school policy
30. Ability to obtain pupil cooperation
31. Upholding of moral standards
32. Transfer of religious beliefs into subject matter.

Hypothesis 2
There is no significant multiple linear correlation between the dependent variable and the 31 independent variables combined.

Hypothesis 3
There is no significant multiple linear correlation between the dependent variable and the following categories of independent variables:

1. The student teacher's academic achievement (college and/or teacher education courses G.P.A.)
2. The student teacher's personal qualities (enthusiasm, health and alertness, dependability and responsibility, emotional balance and poise)
3. The student teacher's professional qualities (voice and communication, personal appearance and dress, motivation as a teacher, willingness to cooperate, readiness to accept criticism, regularity and punctuality, ability to establish a class climate favorable to learning).

4. The student teacher's interpersonal relationship (the way he/she relates to pupils, associates, administrators, pupils' parents, and the school community)

5. The student teacher's teaching skills and competencies (knowledge of subject matter, ability for planning and organizing class activities, resourcefulness and initiative in finding information and materials, efficiency in presenting information and materials, fairness and consistency in evaluating pupils' work, efficiency in providing feedback to pupils, ability to discover individual pupils' needs and attending to them)

6. The student teacher's classroom management skills (ability to maintain discipline, fairness in the treatment of students, ability to manage unexpected situations, efficiency in upholding school policy, ability to obtain pupil cooperation)

7. The student teacher's moral and religious commitment (upholding of moral standards, transfer of religious beliefs into subject matter).

Research Question

The best combination of predictors of student-teaching success among the thirty-one listed was also sought.
Data Analysis

The collected data required for this investigation were verified and prepared for processing. The data were then analyzed using multiple-regression computer programs. Details of analyses and results are given in chapter 4.
CHAPTER IV

ANALYSIS OF DATA,
RESULTS AND FINDINGS

The purpose of this study was to determine whether the thirty-one measures previously identified as independent variables could be used singly or in combination to predict success in elementary student teaching in selected Seventh-day Adventist colleges. The statistical treatment to which the data were submitted as well as the results obtained are presented in this chapter.

Statistical Analysis

The objective of this study was accomplished through the utilization of the following statistical programs: the Multiple Linear Regression Program, the All Possible Subsets Regression Program, and the Stepwise Regression Program from the Andrews University Computing Center, Berrien Springs, Michigan.

Organized in three sections, this chapter shows the successive statistical treatments to which the data were submitted.

The first section describes the relationship of (i) each individual dependent variable with the dependent variable or criterion measure, as appearing in the zero order correlation matrix (hypothesis I), and (ii) the thirty-one independent variables combined (hypothesis II).
The second section is a presentation of correlations and coefficients obtained from the all possible subsets regression. The relationship between the dependent variable and each category of independent variables is presented (hypothesis III). The best subset is also presented.

Section three records the results of the stepwise multiple regression, which purpose was to determine the strength of the correlations obtained from the preceding program, the all possible subsets analysis. On account of the rather large sample size (450), the predetermined F-ratio was set at 4.000, at the .01 level of significance.

Section I

Hypothesis I. There is no positive simple linear correlation between the dependent variable and each of the 31 independent variables.

In the first step, the data were analyzed through the BMDP1R-Multiple Linear Regression Program. This was done to determine the relationship between each of the thirty-one selected measures used as independent variables and the dependent variable or criterion measure, which was the letter grade assigned to the 450 elementary student teachers involved in this study. This letter grade had been converted into numerical form for the purpose of statistical analysis.

The zero-order correlation matrix (table 1) shows that the thirty-one selected measures were positively correlated with student teachers' final grade, the criterion measure.
### Table 1
MULTIPLE LINEAR REGRESSION: ZERO ORDER CORRELATION MATRIX

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Strength of Correlation with Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. College G.P.A.</td>
<td>.2221</td>
</tr>
<tr>
<td>3. Teacher Education G.P.A.</td>
<td>.2674</td>
</tr>
<tr>
<td>4. Enthusiasm</td>
<td>.6699</td>
</tr>
<tr>
<td>5. Health and alertness</td>
<td>.7082</td>
</tr>
<tr>
<td>6. Responsibility and Dependability</td>
<td>.6274</td>
</tr>
<tr>
<td>7. Emotional Balance</td>
<td>.6246</td>
</tr>
<tr>
<td>8. Voice and Communication</td>
<td>.6450</td>
</tr>
<tr>
<td>9. Personal Appearance and Dress</td>
<td>.4856</td>
</tr>
<tr>
<td>10. Motivation</td>
<td>.7520</td>
</tr>
<tr>
<td>11. Cooperation</td>
<td>.6327</td>
</tr>
<tr>
<td>12. Accepting Criticism</td>
<td>.6282</td>
</tr>
<tr>
<td>13. Punctuality and Regularity</td>
<td>.4866</td>
</tr>
<tr>
<td>14. Ability to Establish Class Climate</td>
<td>.7585</td>
</tr>
<tr>
<td>15. Relationship with Pupils</td>
<td>.6411</td>
</tr>
<tr>
<td>16. Relationship with Colleagues</td>
<td>.6997</td>
</tr>
<tr>
<td>17. Relationship with Administrators</td>
<td>.6915</td>
</tr>
<tr>
<td>18. Relationship with Parents and Community</td>
<td>.6507</td>
</tr>
<tr>
<td>19. Knowledge of Subject Matter</td>
<td>.7094</td>
</tr>
<tr>
<td>20. Organizing and Planning Lessons</td>
<td>.7195</td>
</tr>
<tr>
<td>21. Initiative and Resourcefulness</td>
<td>.6554</td>
</tr>
<tr>
<td>22. Presentation of Materials and Information</td>
<td>.7429</td>
</tr>
<tr>
<td>23. Evaluation of Pupils' Work</td>
<td>.7942</td>
</tr>
<tr>
<td>24. Giving Feedback to Pupils</td>
<td>.8362</td>
</tr>
<tr>
<td>25. Finding Individual Pupils' Needs</td>
<td>.7793</td>
</tr>
<tr>
<td>26. Establishing Discipline</td>
<td>.6950</td>
</tr>
<tr>
<td>27. Fairness in Treatment to pupils</td>
<td>.6971</td>
</tr>
<tr>
<td>28. Handling unexpected situations</td>
<td>.6947</td>
</tr>
<tr>
<td>29. Upholding School Policy</td>
<td>.7209</td>
</tr>
<tr>
<td>30. Obtaining Pupils' Cooperation</td>
<td>.6947</td>
</tr>
<tr>
<td>31. Upholding Moral Standards</td>
<td>.6346</td>
</tr>
<tr>
<td>32. Transfer of Religious Beliefs in Teachings</td>
<td>.5767</td>
</tr>
</tbody>
</table>

Variable 24 feedback exhibited highest positive correlation (.8362) with the criterion. Evaluation of pupils' work, finding individual pupils' needs, establishing class climate, presentation of...
materials and information, motivation, upholding school policy, knowledge of subject matter, health and alertness, organization and planning of lessons, relationships with colleagues, fairness of treatment to pupils, and establishing discipline indicated relatively high positive correlation with final grade. The other variables showed average positive correlations with the criteria, except punctuality (.4866), personal appearance and dress (.4856), teacher education courses G.P.A. (.2674), and college G.P.A. (.2221) which although correlating positively with the criterion, showed relatively low correlations (table 1).

Hypothesis II. There is no positive simple linear correlation between the 31 independent variables combined, and the dependent variable.

When all the data were considered as a single group, there were indications that the thirty-one independent variables, in combination, were positively and significantly correlated with the dependent variable (table 2). The multiple r-Squared was quite high (.8499) and so was the F value of (F = 76.561), with a probability of .00005, at the .01 level of significance. With a standard error of Estimate of .3620, almost 74 percent of the variance was explained.

However, only the following independent variables had a significant t-value: motivation, establishing class climate, knowledge of subject matter, organization and planning of lessons, presentation of materials and information, giving feedback to pupils, finding individual pupil's needs, and transfer of religious beliefs in teaching. Establishing discipline was close to significance, with a
t-value of 1.939 and a chance probability of .053 (table 2). Besides, the
above predictor variables had a positive and comparatively high
standard regression coefficient. The other predictor variables had
either a negative or a low positive standard regression coefficient
(table 2).

Hypothesis III. There is no significant multiple linear
correlation between the dependent variable and each category of
independent variables.

The thirty-one predictor variables were also analyzed within
the categories to which they belong, namely: (1) the student
teacher's academic achievement, (2) personal qualities, (3) pro-
fessional qualities, (4) interpersonal relationships, (5) teaching
skills, and (7) moral and religious commitment.

The purpose of this statistical analysis was to determine how
the variables, in combination, selected for each of those categories
predict student-teaching success. The first category analyzed was the
Academic Achievement sub-group consisting of variables 2 and 3,
college G.P.A. and teacher education courses G.P.A., respectively.

Table 3 indicated that as a group the two variables were
positively and significantly correlated with the criterion measure
(student-teacher final grade). The F ratio was 18.649, with a chance
probability of .00005. However, the multiple r-squared was very low
(.0769).

A look at the standard regression coefficient and the
values showed that although the two variables were significantly
correlated to the criterion, in combination, this was not the case
TABLE 2  
MULTIPLE LINEAR REGRESSION. ALL DATA CONSIDERED AS A SINGLE GROUP

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standard Regression Coefficient</th>
<th>T</th>
<th>P (2-Tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. College G.P.A.</td>
<td>-0.022</td>
<td>-0.071</td>
<td>.9440</td>
</tr>
<tr>
<td>3. Teacher Education Courses G.P.A.</td>
<td>0.012</td>
<td>.471</td>
<td>.6380</td>
</tr>
<tr>
<td>4. Enthusiasm</td>
<td>0.028</td>
<td>.835</td>
<td>.4040</td>
</tr>
<tr>
<td>5. Health &amp; Alertness</td>
<td>0.020</td>
<td>.593</td>
<td>.5530</td>
</tr>
<tr>
<td>6. Responsibility &amp; Dependability</td>
<td>0.005</td>
<td>.160</td>
<td>.8730</td>
</tr>
<tr>
<td>7. Emotional Balance</td>
<td>-0.029</td>
<td>-0.940</td>
<td>.3480</td>
</tr>
<tr>
<td>8. Voice &amp; Communication</td>
<td>-0.017</td>
<td>-0.585</td>
<td>.5590</td>
</tr>
<tr>
<td>9. Personal Appearance &amp; Dress</td>
<td>0.025</td>
<td>1.010</td>
<td>.3130</td>
</tr>
<tr>
<td>10. Motivation</td>
<td>0.092</td>
<td>2.323</td>
<td>.0210</td>
</tr>
<tr>
<td>11. Cooperation</td>
<td>-0.050</td>
<td>-1.413</td>
<td>.1590</td>
</tr>
<tr>
<td>12. Accepting Criticism</td>
<td>-0.007</td>
<td>-0.196</td>
<td>.8450</td>
</tr>
<tr>
<td>13. Punctuality &amp; Regularity</td>
<td>0.030</td>
<td>1.178</td>
<td>.2390</td>
</tr>
<tr>
<td>14. Establishing Class Climate</td>
<td>0.073</td>
<td>2.077</td>
<td>.0380</td>
</tr>
<tr>
<td>15. Relationship with Pupils</td>
<td>0.011</td>
<td>.330</td>
<td>.7410</td>
</tr>
<tr>
<td>16. Relationship with Colleagues</td>
<td>0.103</td>
<td>1.517</td>
<td>.1300</td>
</tr>
<tr>
<td>17. Relationship with Administrators</td>
<td>-0.054</td>
<td>-0.791</td>
<td>.4290</td>
</tr>
<tr>
<td>18. Relationship with Parents &amp; Community</td>
<td>0.006</td>
<td>0.125</td>
<td>.9010</td>
</tr>
<tr>
<td>19. Knowledge of Subject Matter</td>
<td>0.113</td>
<td>3.835</td>
<td>.0005</td>
</tr>
<tr>
<td>20. Organizing &amp; Planning Lesson</td>
<td>0.086</td>
<td>2.757</td>
<td>.0065</td>
</tr>
<tr>
<td>21. Initiative &amp; Resourcefulness</td>
<td>0.006</td>
<td>0.196</td>
<td>.8450</td>
</tr>
<tr>
<td>22. Presentation of Materials and Information</td>
<td>0.075</td>
<td>2.327</td>
<td>.0210</td>
</tr>
<tr>
<td>23. Evaluation of Pupils' Work</td>
<td>0.041</td>
<td>0.942</td>
<td>.3470</td>
</tr>
<tr>
<td>24. Giving Feedback to Pupils</td>
<td>0.178</td>
<td>3.588</td>
<td>.0005</td>
</tr>
<tr>
<td>25. Finding Individual Needs</td>
<td>0.119</td>
<td>3.310</td>
<td>.0010</td>
</tr>
<tr>
<td>26. Establishing Discipline</td>
<td>0.081</td>
<td>1.939</td>
<td>.0530</td>
</tr>
<tr>
<td>27. Fairness in Treatment to Pupils</td>
<td>-0.021</td>
<td>-0.521</td>
<td>.6020</td>
</tr>
<tr>
<td>28. Handling Unexpected Situations</td>
<td>-0.011</td>
<td>-0.248</td>
<td>.8040</td>
</tr>
<tr>
<td>29. Upholding School Policy</td>
<td>0.027</td>
<td>0.642</td>
<td>.5210</td>
</tr>
<tr>
<td>30. Obtaining Pupils' Cooperation</td>
<td>0.042</td>
<td>1.312</td>
<td>.1900</td>
</tr>
<tr>
<td>31. Upholding Moral Standards</td>
<td>0.048</td>
<td>1.679</td>
<td>.0940</td>
</tr>
<tr>
<td>32. Transfer of Religious Beliefs in Teaching</td>
<td>0.156</td>
<td>6.770</td>
<td>.0005</td>
</tr>
</tbody>
</table>

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Table 2--Continued

Analysis of Variance of the Above Regression

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>31</td>
<td>311.078</td>
<td>10.035</td>
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<td>.00005</td>
</tr>
<tr>
<td>Residual</td>
<td>418</td>
<td>54.918</td>
<td>.131</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>449</td>
<td>365.996</td>
<td>10.166</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 450
Multiple R-Squared = .8499
Variance explained = .6380 or almost 64%

when they were considered separately. Teacher education courses G.P.A. had a significant t-value of 3.654 with a chance probability of .005, whereas college G.P.A. had a t-value of 1.610 with a chance probability of .108.

The next category analyzed was the Personal Qualities subgroup. It consisted of the following variables: enthusiasm (4), health and alertness (5), responsibility and dependability (6), and emotional balance (7).

In combination, those predictor variables had a multiple r-square of .6137, with a significant F of 177.126, which indicated that the Personal Qualities group was positively correlated with final grade, the criterion measure. However, the standard error of estimate was rather high: .5630. The variables considered one by one had positive coefficients and significant t-values. Every single variable had a high t-value with a chance probability of .00005 (table 4).
TABLE 3
MULTIPLE LINEAR REGRESSION. ALL DATA
CONSIDERED AS A SINGLE GROUP

Category 1: Academic Achievement

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Standard Regression Coefficient</th>
<th>T</th>
<th>P (2-Tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. College G.P.A.</td>
<td>.093</td>
<td>1.610</td>
<td>.108</td>
</tr>
<tr>
<td>3. Teacher Education Courses G.P.A.</td>
<td>.210</td>
<td>3.654</td>
<td>.000</td>
</tr>
</tbody>
</table>

Analysis of Variance of the above Regression

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS.</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2</td>
<td>28.129</td>
<td>14.065</td>
<td>18.649</td>
<td>.00005</td>
</tr>
<tr>
<td>Residual</td>
<td>447</td>
<td>337.866</td>
<td>.754</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>449</td>
<td>365.995</td>
<td>14.819</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 450
Multiple R-Squared = .0769
Variance explained = .1316 or 13%

The student teacher's professional qualities were analyzed as a group, including the following predictor variables: voice and communication (8), personal appearance and dress (9), motivation (10), cooperation (11), accepting criticism (12), punctuality and regularity (13), and establishing class climate (14).

The multiple r-squared was quite high: .6975. The F ratio of 145.932 indicated significant correlation between professional...
TABLE 4
MULTIPLE LINEAR REGRESSION. ALL DATA CONSIDERED AS A SINGLE GROUP

Category 2: Personal Qualities

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standard Regression Coefficient</th>
<th>T</th>
<th>P (2-Tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Enthusiasm</td>
<td>.199</td>
<td>4.362</td>
<td>.0005</td>
</tr>
<tr>
<td>5. Health and Alertness</td>
<td>.316</td>
<td>6.784</td>
<td>.0005</td>
</tr>
<tr>
<td>6. Responsibility and Dependability</td>
<td>.201</td>
<td>5.049</td>
<td>.0005</td>
</tr>
<tr>
<td>7. Emotional Balance</td>
<td>.201</td>
<td>5.312</td>
<td>.0005</td>
</tr>
</tbody>
</table>

Analysis of Variance of the Above Regression

<table>
<thead>
<tr>
<th>Source</th>
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<th>SS.</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>224.607</td>
<td>56.152</td>
<td>177.126</td>
<td>.00005</td>
</tr>
<tr>
<td>Residual</td>
<td>445</td>
<td>141.389</td>
<td>.317</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>449</td>
<td>365.996</td>
<td>56.469</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 450
Multiple R-Squared = .6137
Variance explained = .4370 or 44%

qualities and final grade, the criterion measure. The standard error of estimate was .4999.

Considered separately, four of the variables in this category did not have significant t-values: personal appearance, cooperation, accepting criticism, and punctuality and regularity (table 5). Voice and communication, motivation, and ability to
### TABLE 5
MULTIPLE LINEAR REGRESSION. ALL DATA CONSIDERED AS A SINGLE GROUP

Category 3: Professional Qualities

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standard Regression Coefficient</th>
<th>T</th>
<th>P (2-Tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Voice and Communication</td>
<td>.115</td>
<td>3.111</td>
<td>.002</td>
</tr>
<tr>
<td>9. Personal Appearance &amp; Dress</td>
<td>.029</td>
<td>.895</td>
<td>.371</td>
</tr>
<tr>
<td>10. Motivation</td>
<td>.281</td>
<td>6.018</td>
<td>.000</td>
</tr>
<tr>
<td>11. Cooperation</td>
<td>.065</td>
<td>1.443</td>
<td>.150</td>
</tr>
<tr>
<td>12. Accepting Criticism</td>
<td>.059</td>
<td>1.363</td>
<td>.174</td>
</tr>
<tr>
<td>13. Punctuality and Regularity</td>
<td>.062</td>
<td>1.859</td>
<td>.064</td>
</tr>
<tr>
<td>14. Establishing Class Climate</td>
<td>.381</td>
<td>9.604</td>
<td>.005</td>
</tr>
</tbody>
</table>

#### Analysis of Variance of the Above Regression

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS.</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>7</td>
<td>255.287</td>
<td>36.470</td>
<td>145.932</td>
<td>.00005</td>
</tr>
<tr>
<td>Residual</td>
<td>442</td>
<td>110.709</td>
<td>.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>449</td>
<td>365.996</td>
<td>36.720</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 450  
Multiple R-Squared = .6975  
Variance explained = .5001 or 50%

establish class climate were significantly related to final grade.

The student teacher’s interpersonal qualities were analyzed as a group or category. The predictor variables included were as follows: relationship with pupils (15), relationship with colleagues (16), relationship with administrators (17), and relationship with parents and community (18).
The multiple r-square was .5188. The F ratio of 120.231 with a chance probability of .00005 indicated that interpersonal relationships in combination were significantly correlated with final grade, the criterion measure.

However, considered in isolation, two of the predictor variables had t-values lower than required for significance. Relationship with administrators had a t-of 1.666, with a chance probability of .096, and relationship with pupils' parents and the community had a t-value of .314, with a P of .754. The Standard Error of Estimate for this category was quite high: .6284, which indicates that a high percentage of variance was unexplained (table 6).

The student teacher's teaching skills and competencies were analyzed as a group. Included were: knowledge of subject matter (19), organization and planning of lessons (20), initiative and resourcefulness (21), presentation of materials and information (22), evaluation of pupils' work (23), giving feedback (24), and finding individual needs (25).

The multiple r-squared was quite high: .7926. The F ratio of 241.904 indicated that the student teacher's teaching skills in combination were significantly correlated with final grade, the criterion measure. The standard error of estimate was .4139.

Considered singly, all the predictor variables in this category had significant t-values, except initiative and resourcefulness. This variable had a standard regression coefficient of .049, a t-value of 1.580, with chance probability of .115 (table 7).

The student teacher's classroom management skills were analyzed as a group. They consisted of the following predictor
TABLE 6
MULTIPLE LINEAR REGRESSION. ALL DATA CONSIDERED AS A SINGLE GROUP

Category 4: The Student Teacher's Relationship

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standard Regression Coefficient</th>
<th>T</th>
<th>P (2-Tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Relationship with Pupils</td>
<td>.232</td>
<td>4.387</td>
<td>.0005</td>
</tr>
<tr>
<td>16. Relationship with Colleagues</td>
<td>.321</td>
<td>2.865</td>
<td>.0040</td>
</tr>
<tr>
<td>17. Relationship with Administrators</td>
<td>.187</td>
<td>1.666</td>
<td>.0960</td>
</tr>
<tr>
<td>18. Relationship with Parents and Community</td>
<td>.024</td>
<td>.324</td>
<td>.754</td>
</tr>
</tbody>
</table>

Analysis of Variance of the Above Regression

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS.</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>4</td>
<td>184.893</td>
<td>47.473</td>
<td>120.231</td>
<td>.00005</td>
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<tr>
<td>Residual</td>
<td>445</td>
<td>176.103</td>
<td>.395</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>449</td>
<td>365.996</td>
<td>47.868</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 450
Multiple R-Squared = .5188
Variance explained = .3716 or 37%

variables: establishing discipline (26), fairness in the treatment of pupils (27), handling unexpected situations (28), upholding school policy (29), and obtaining pupil cooperation (30).

Considered in combination, those variables were significantly correlated with final grade, the dependent variable or criterion measure. The multiple r-squared was .6686; F ratio = 179.587, with P = .00005. The standard error of estimate was .5520.
TABLE 7
MULTIPLE LINEAR REGRESSION. ALL DATA CONSIDERED AS A SINGLE GROUP

Category 5: Teaching Skills and Competencies

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standard Regression Coefficient</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. Knowledge of Subject Matter</td>
<td>.147</td>
<td>4.588</td>
<td>.0005</td>
</tr>
<tr>
<td>20. Organizing and Planning Lessons</td>
<td>.105</td>
<td>3.054</td>
<td>.0020</td>
</tr>
<tr>
<td>21. Initiative &amp; Resourcefulness</td>
<td>.049</td>
<td>1.580</td>
<td>.1150</td>
</tr>
<tr>
<td>22. Presentation of Materials and Information</td>
<td>.141</td>
<td>4.053</td>
<td>.0005</td>
</tr>
<tr>
<td>23. Evaluation of Pupils' Work</td>
<td>.102</td>
<td>2.138</td>
<td>.0330</td>
</tr>
<tr>
<td>24. Giving Feedback to Pupils</td>
<td>.271</td>
<td>5.009</td>
<td>.0005</td>
</tr>
<tr>
<td>25. Finding Individual Pupils' Needs</td>
<td>.216</td>
<td>5.951</td>
<td>.0005</td>
</tr>
</tbody>
</table>

Analysis of Variance of the Above Regression

<table>
<thead>
<tr>
<th>Source</th>
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<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>7</td>
<td>290.101</td>
<td>41.443</td>
<td>241.904</td>
<td>.00005</td>
</tr>
<tr>
<td>Residual</td>
<td>442</td>
<td>75.895</td>
<td>.171</td>
<td></td>
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</tr>
<tr>
<td>Total</td>
<td>449</td>
<td>365.996</td>
<td>41.614</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 450
Multiple R-Squared = .7926
Variance explained = .5861 or 58.6%

Taken in isolation, every predictor variable showed a positive coefficient and a significant t-value (table 8).

Finally, the student teacher's moral and religious commitments, consisting of upholding moral values (31) and transfer of religious beliefs in teaching (32) were analyzed as a group. The multiple r-squared of .5065 indicated a positive correlation of the
## TABLE 8

**MULTIPLE LINEAR REGRESSION. ALL DATA CONSIDERED AS A SINGLE GROUP**

**Category 6: Classroom Management Skills**

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Standard Regression Coefficient</th>
<th>T</th>
<th>P (t-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26. Establishing Discipline</td>
<td>.194</td>
<td>3.345</td>
<td>.0010</td>
</tr>
<tr>
<td>27. Fairness in Pupils' Treatment</td>
<td>.112</td>
<td>2.104</td>
<td>.0360</td>
</tr>
<tr>
<td>28. Handling Unexpected Situations</td>
<td>.139</td>
<td>2.373</td>
<td>.0180</td>
</tr>
<tr>
<td>29. Upholding School Policy</td>
<td>.273</td>
<td>5.144</td>
<td>.0005</td>
</tr>
<tr>
<td>30. Obtaining Pupil Cooperation</td>
<td>.236</td>
<td>5.801</td>
<td>.0005</td>
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**Analysis of Variance of the Above Regression**

<table>
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<th>MS</th>
<th>F</th>
<th>P</th>
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<td>244.718</td>
<td>48.944</td>
<td>179.587</td>
<td>.00005</td>
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<tr>
<td>Residual</td>
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<td>121.278</td>
<td>.273</td>
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<tr>
<td>Total</td>
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<td>365.996</td>
<td>49.217</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 450

Multiple R-Squared = .6686

Variance explained = .478 or 49%

Two variables combined with the final grade. The F ratio of 229.871 showed that the correlation was significant.

Singly, the predictor variables had coefficients of .469 and .362, respectively, with significant t-values (table 9).
TABLE 9
MULTIPLE LINEAR REGRESSION. ALL DATA
CONSIDERED AS A SINGLE GROUP

Category 7: Moral and Religious Commitments

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Standard Regression Coefficient</th>
<th>T</th>
<th>P (2-Tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>31. Upholding Moral Values</td>
<td>.469</td>
<td>12.565</td>
<td>.0005</td>
</tr>
<tr>
<td>32. Transfer of Religious Beliefs</td>
<td>in Teaching</td>
<td>.362</td>
<td>9.707</td>
</tr>
</tbody>
</table>

Analysis of Variance of the Above Regression

<table>
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<tr>
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<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
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<td>185.365</td>
<td>92.683</td>
<td>229.871</td>
<td>.00005</td>
</tr>
<tr>
<td>Residual</td>
<td>447</td>
<td>180.631</td>
<td>.403</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>449</td>
<td>365.996</td>
<td>93.086</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 450
Multiple R-Square = .5065
Variance explained = .365 or 36.5%

Summary of Section 1

The data gathered for this study were first analyzed, using the Multiple Linear Regression Program BMDP1R. The purpose of the analysis was to determine whether each of the thirty-one predictor variables was significantly correlated with the student teacher's final grade.

The thirty-one predictors were considered as a single group. The F ratio of 75.561 indicated a significant correlation with the criterion. However, when the predictors were considered
individually, only eight of them had significant t-values, namely, motivation, establishing class climate, knowledge of subject matter, organizing and planning lessons, presentation of materials and information, giving feedback to pupils, finding individual needs, and transfer of religious beliefs in teaching.

When the predictor variables were analyzed in the categories to which they belong, every category or cluster was significantly correlated with final grade, the criterion measure. However, within the following groups, it was found that one or more variables did not have significant t-values: Academic Achievement, Professional Qualities, Interpersonal Relationships, and Teaching Skills and Competencies.

All the variables in the following categories had significant t-values: Personal Qualities, Classroom Management, and Moral/Religious Commitment.

Section 2
Research Question. The best combination of predictors of student-teaching success.

After analysis by the Multiple Linear Regression Program, the data were submitted to the All Possible Subsets Regression Program, BMDP9R. The purpose of this statistical analysis was to look at all the possible combinations of variables that would predict student-teaching success, and to determine the best of those combinations.

The histogram in appendix D indicated normality of the distribution. Starting by the subsets with one variable, the
The computer analysis process went on until all possible subsets had been considered, that is, subsets with thirty-one variables. Stability began to be noted when the subset with nine variables was analyzed (C.P. = 15.20).

The subsets with nine, ten, eleven, and twelve variables all appeared to be good, with r-squared ranging between .838005 and .844012, and C.P.s between 15.20 and 4.69 (appendix B).

The computer selected the subset with twelve variables as its best subset. This subset had a multiple r-squared of .844012 with an F ratio of 197.04 and chance probability .00005. The following predictor variables were included in this subset: motivation (10), punctuality and regularity (13), establishing class climate (14), relationship with colleagues (16), knowledge of subject matter (19), organizing and planning of lessons (20), presentation of materials and information (22), giving feedback (24), finding individual needs (25), establishing discipline (26), upholding moral values (31), and transfer of religious beliefs in teaching (32).

The rather high multiple r-squared of .844012 and the F ratio of 197.04 indicated that the subset with twelve variables was significantly correlated with the criterion measure, final grade. But the same could be said regarding the subsets with nine, ten, and eleven which were stable and had high multiple r-squared. It was therefore necessary to look at every one of the twelve variables and to compare the subsets. Table 10 shows the statistics for those variables.

The regression coefficient for variable 13 (punctuality and
<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Regression Coefficient</th>
<th>T-Stat.</th>
<th>2-Tail Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Motivation</td>
<td>0.1002</td>
<td>2.72</td>
<td>0.0070</td>
</tr>
<tr>
<td>13. Punctuality &amp; Regularity</td>
<td>0.0610</td>
<td>2.03</td>
<td>0.0430</td>
</tr>
<tr>
<td>14. Establishing Class Climate</td>
<td>0.0961</td>
<td>2.78</td>
<td>0.0060</td>
</tr>
<tr>
<td>16. Relationship with Colleagues</td>
<td>0.0879</td>
<td>2.54</td>
<td>0.0110</td>
</tr>
<tr>
<td>19. Knowledge of Subject Matter</td>
<td>0.1318</td>
<td>4.41</td>
<td>0.0005</td>
</tr>
<tr>
<td>20. Organization &amp; Planning of Lessons</td>
<td>0.0833</td>
<td>2.85</td>
<td>0.0050</td>
</tr>
<tr>
<td>22. Presentation of materials &amp; Information</td>
<td>0.0902</td>
<td>2.83</td>
<td>0.0050</td>
</tr>
<tr>
<td>24. Giving Feedback to Pupils</td>
<td>0.1996</td>
<td>5.18</td>
<td>0.0005</td>
</tr>
<tr>
<td>25. Finding Individual Needs</td>
<td>0.1291</td>
<td>3.99</td>
<td>0.0005</td>
</tr>
<tr>
<td>26. Establishing Discipline</td>
<td>0.0794</td>
<td>2.71</td>
<td>0.0070</td>
</tr>
<tr>
<td>31. Upholding Moral Values</td>
<td>0.0929</td>
<td>2.22</td>
<td>0.0270</td>
</tr>
<tr>
<td>32. Transfer of Religious Beliefs in Teaching</td>
<td>0.1779</td>
<td>7.52</td>
<td>0.0005</td>
</tr>
</tbody>
</table>

Multiple R-Squared = .844012
F-Statistic = 197.04
Significance = .00005

regularity) was the lowest, .061. Its t-value of 2.03 was slightly above the t-value set for significance. Its tolerance was .74657. This means that variable 13 correlated only .25 with the other variables. Its contribution to the r-squared was .001 (table 11).

Transfer of religious beliefs into teaching (variable 32)
TABLE II
ALL POSSIBLE SUBSETS REGRESSION
Statistics for Best Subset

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Tolerance</th>
<th>Contribution to R-Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Motivation</td>
<td>.34991</td>
<td>.00264</td>
</tr>
<tr>
<td>13. Punctuality &amp; Regularity</td>
<td>.74657</td>
<td>.00148</td>
</tr>
<tr>
<td>14. Establishing Class Climate</td>
<td>.34906</td>
<td>.00276</td>
</tr>
<tr>
<td>16. Relationship with Colleagues</td>
<td>.43359</td>
<td>.00230</td>
</tr>
<tr>
<td>19. Knowledge of Subject Matter</td>
<td>.47655</td>
<td>.00694</td>
</tr>
<tr>
<td>20. Organization &amp; Planning of Lessons</td>
<td>.42935</td>
<td>.00290</td>
</tr>
<tr>
<td>22. Presentation of Materials &amp; Information</td>
<td>.40017</td>
<td>.00285</td>
</tr>
<tr>
<td>24. Giving Feedback to Pupils</td>
<td>.24387</td>
<td>.00956</td>
</tr>
<tr>
<td>25. Finding Individual Needs</td>
<td>.34651</td>
<td>.00568</td>
</tr>
<tr>
<td>26. Establishing Discipline</td>
<td>.44358</td>
<td>.00262</td>
</tr>
<tr>
<td>31. Upholding Moral Values</td>
<td>.55017</td>
<td>.00176</td>
</tr>
<tr>
<td>32. Transfer of Religious Beliefs in Teaching</td>
<td>.74657</td>
<td>.02016</td>
</tr>
</tbody>
</table>

contributed higher to the r-squared (.020). But it correlated only .25 with the other variables.

Table II shows that motivation, establishing class climate, and finding individual needs correlated .65 with the other variables. Presentation of material and information correlated .60, while relationship with colleagues, organization and planning of lessons, and establishing discipline correlated approximately .56
with the other variables. Knowledge of subject matter correlated .52. The variable that correlated best with the other variables was number 24 (giving feedback to pupils). Its correlation was .75.

A comparison of the subsets with nine, ten, eleven, and twelve variables (appendix B) sheds light on the correlations observed in table 10. All the variables in the best subset appeared between nine and ten times on an average, except variable 31 (upholding moral standards) which appeared 6.6 times, and variable 13 (punctuality and regularity) which appeared only 4 times. Those two were the ones that were the least correlated with the other variables.

The most economical way to predict final grade seems to be through the use of the subset with ten variables, because it includes all the variables in the subsets that indicated stability and had a high r-squared. The subset with ten variables is what remains after the two variables which did not correlate very well with the others have been left out, namely, punctuality and regularity, and upholding moral standards.

The bivariate plots (appendix D) illustrate the correlation of each of those ten variables in the selected best subset, with final grade, the criterion. The normal probability plot shows linearity of the correlations (appendix D).

Summary

The data for this study were computer analyzed using the All Possible Subsets Regression Program, BMDP9R.

Several subsets showed stability and had rather high R-squared. They correlated significantly with the criterion measure.
The subset with twelve variables appeared as the best subset. However, two of the variables did not correlate very well with the other variables. Those were punctuality and regularity, and upholding moral values.

The following combination of variables seemed to be the best for predicting final grade, the criterion measure: motivation (va. 10), establishing class climate (va. 14), relationship with colleagues (va. 16), knowledge of subject matter (va. 19), organization and planning of lessons (va. 20), presentation of materials and information (va. 22), giving feedback (va. 24), finding individual needs (va. 25), establishing discipline (va. 26), and transfer of religious beliefs in teaching (va. 32).

Section 3: Determining the Strength of the Significance of Variables Selected in the Best Subset

To determine whether the predictor variables included in the selected best subset should be maintained or not, the data were submitted to the Stepwise Multiple-Regression Program, BMDP2R.

Variables were added and retained as long as they exhibited an $F$ ratio value greater than 4.00, at the .01 level of significance. All possible variables were added until no entering variable could produce an $F$ ratio higher than 4.00.

The procedure was followed twice. The first time, it was done with the purpose of finding which of the significant variables from each of the seven clusters or categories of predictors should be maintained. Next, the procedure was repeated to determine which of the variables from the best subset should be maintained.
Category 1: Academic Achievement

The Academic Achievement category consisted of two variables: college G.P.A. and teacher education courses G.P.A. Since the multiple linear regression analysis had demonstrated that college G.P.A. was not significantly correlated with final grade, only teacher education courses G.P.A. (va. 3) was entered in the computer for the stepwise regression analysis. As shown in table 12, it had a multiple r-squared of .0579 and its contribution to the r-squared amounted to .0578. The F ratio value of 27.4584 was significant. Consequently, teacher education courses G.P.A., the only variable left in the Academic Achievement cluster, was retained as a significant predictor of final grade.

TABLE 12
STEPWISE REGRESSION
Summary Table

<table>
<thead>
<tr>
<th>Variable Entered</th>
<th>Multiple R-Squared</th>
<th>Increase in R-Squared</th>
<th>F-To-Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Teacher Education Courses G.P.A.</td>
<td>.0578</td>
<td>.0578</td>
<td>27.4584</td>
</tr>
</tbody>
</table>

Category 2. Personal Qualities

The Personal Qualities cluster consisted of the following predictor variables: enthusiasm (va. 4), health and alertness (va. 5), responsibility and dependability (va. 6), and emotional balance (va. 7). Since every one of those variables had significant
t-values, according to the multiple linear regression analysis, and since as a group they were significantly correlated with the criterion measure, they were all maintained. The Personal Qualities category was considered useful for predicting final grade in student teaching (table 4). No stepwise regression was done because each one of the variables in this category had a significant t-value.

Category 3: Professional Qualities

Of the seven predictor variables in the professional qualities cluster, only three appeared to be significantly correlated when analyzed by the Multiple Linear Regression Program (table 5). Those were voice and communication (va. 8), motivation (va. 10), and establishing class climate (va. 14). Consequently, the data were submitted to the Stepwise Regression Program (table 13).

**TABLE 13**

**STEPWISE REGRESSION**

<table>
<thead>
<tr>
<th>Variable Entered</th>
<th>Multiple R-Squared</th>
<th>Increase in R-Squared</th>
<th>F-To Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Establishing Class Climate</td>
<td>.5557</td>
<td>.5557</td>
<td>560.2913</td>
</tr>
<tr>
<td>10. Motivation</td>
<td>.6581</td>
<td>.1024</td>
<td>133.8824</td>
</tr>
<tr>
<td>12. Accepting Criticism</td>
<td>.6697</td>
<td>.0116</td>
<td>15.7083</td>
</tr>
<tr>
<td>8. Voice and Communication</td>
<td>.6781</td>
<td>.0083</td>
<td>11.5257</td>
</tr>
<tr>
<td>13. Punctuality and Regularity</td>
<td>.6823</td>
<td>.0042</td>
<td>5.9016</td>
</tr>
</tbody>
</table>
As a group, the student teacher's professional qualities were significantly correlated with final grade. However, when the contribution to the r-squared of variables 12 (accepting criticism), 18 (voice and communication), and 13 (punctuality and regularity) were considered, it seemed that they should not be maintained in the group of predictors. However, variables 14 (establishing class climate) and 10 (motivation), with their large F ratios and considerable contribution to the r-squared, deserved to be maintained.

Category 4: Interpersonal Relationships

Only two of the four predictor variables in the interpersonal relationships cluster had significant t-values: relationship with pupils (va. 15) and relationship with colleagues (va. 16) (see table 14).

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>R-Squared</th>
<th>Increase in R-Squared</th>
<th>F-To Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Relationship with</td>
<td>.4653</td>
<td>.4653</td>
<td>389.8374</td>
</tr>
<tr>
<td>Colleagues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Relationship with</td>
<td>.4916</td>
<td>.0263</td>
<td>23.0877</td>
</tr>
<tr>
<td>Pupils</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The stepwise regression analysis indicated that both variables had significant F ratios and both contributed rather appreciably to the r-squared, although the contribution of Relationship with Colleagues was much higher than that of Relationship with Pupils.

On account of the large F ratio of the group, interpersonal relationships seemed to be correlated with final grade, when only relationships with colleagues and relationship with pupils were included. The inclusion of relationship with administrators, parents, and the community did not bring any significant increase in the r-squared. Consequently, relationship with colleagues (va. 16) and relationship with pupils (va. 15) were retained.

Category 5: Teaching Skills and Competencies

Only one of the 7 predictor variables in the teaching skills and competencies cluster did not show significance when analyzed by the Multiple Linear Regression program. That was variable 21, initiative and resourcefulness. The remaining six variables were analyzed, using the Stepwise Multiple Regression Program. As illustrated by table 15, all those variables had rather high r-squared, ranging from .6861 to .7815. Besides, all of them had significant F ratios. Those F ratios, however, ranged between 4.7880 and 979.1175. Giving feedback to pupils (va. 24) had the highest F ratio, and evaluation of pupils' work had the lowest F ratio. The contribution of each variable to the r-squared ranged from .0024 to .6861 (giving feedback to pupils).
### TABLE 15

**STEPWISE REGRESSION**

Summary Table

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>r-squared</th>
<th>Increase in r-squared</th>
<th>F To Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. Giving Feedback to Pupils</td>
<td>.6861</td>
<td>.6861</td>
<td>979.1775</td>
</tr>
<tr>
<td>19. Knowledge of Subject Matter</td>
<td>.7307</td>
<td>.0446</td>
<td>73.9573</td>
</tr>
<tr>
<td>25. Finding Individual Needs</td>
<td>.7578</td>
<td>.0271</td>
<td>49.8870</td>
</tr>
<tr>
<td>22. Presentation of Material and Information</td>
<td>.7721</td>
<td>.0143</td>
<td>27.9688</td>
</tr>
<tr>
<td>23. Evaluation of Pupil's Work</td>
<td>.7815</td>
<td>.0024</td>
<td>4.7880</td>
</tr>
</tbody>
</table>

On the basis of the statistics in table 15 it can be said that the student teacher's teaching skills and competencies do predict final grade when the following variables are maintained in the category:

- 24. Giving feedback to pupils
- 19. Knowledge of subject matter
- 25. Finding individual needs
- 22. Presentation of materials and information.

The contribution of variables 20 (organization and planning of lessons) and 23 (evaluation of pupils' work) to the r-squared was not considered high enough for those variables to be retained.
No Stepwise Regression analysis was run for categories six (classroom management skills) and seven (moral and religious commitment of the student teacher), because all the predictor variables included in those categories were found to have significant t-values. Therefore, classroom management skills, including ability to establish discipline (va. 26), fairness in the treatment of pupils (va 27), ability to handle unexpected situations (va. 28), ability to uphold school policy (va. 24), and ability to obtain pupil cooperation (va. 30), were retained as a group that could be used to predict final grade. Also retained was category seven (moral and religious commitment) with its two variables: ability to uphold moral standards (va. 31) and transfer of religious beliefs in teaching (va. 32). No stepwise regression analysis was run because both variables had significant t-values.

Summary

The Stepwise Regression program was used to analyze the thirty-one predictor variables in this study in their respective categories to determine which variables should be retained in each category for predicting final grade. The following variables were retained, within the categories to which they belong, as follows:

Category 1: Academic Achievement. Variable 2, college G.P.A.

Category 2: Personal Qualities. All four variables in this cluster were retained.

Category 3: Professional Qualities. Variables 14 (establishing class climate), and 10 (motivation) were retained.

Category 4: The Student Teacher's Relationship. Variables
16 (relationship with colleagues) and 15 (relationship with pupils) were retained.

Category 5: Teaching Skills and Competencies. Four variables were retained: giving feedback to pupils (va. 24), knowledge of subject matter (va. 19), finding individual needs (va. 25), and presentation of materials and information (va. 22).

Category 6: Classroom Management. All the predictor variables in this cluster were retained.

Category 7: Moral and Religious Commitment. The two variables in this group were retained for predicting the criterion measure.

The Best Subset

The Stepwise Multiple-Regression Program was used to determine which of the variables selected as constituting the best subset for the purpose of predicting the criterion measure should be maintained. That best subset was obtained from the All Possible Subsets Program, BMDP9R. It consisted of twelve variables, two of which were considered not to correlate highly enough with the other variables to be maintained in the best subset of predictors.

The following ten predictor variables were considered to correlate highly enough to be retained: motivation (va. 10), establishing class climate (va. 14), relationship with colleagues (va. 16), knowledge of subject matter (va. 19), organizing and planning lessons (va. 20), presentation of materials and information (va. 22), giving feedback to pupils (va. 24), finding individual needs (va. 25), establishing discipline (va. 26), and transfer of religious beliefs in teaching (va. 32).
A close look at the stepwise regression coefficient of each of those twelve predictor variables indicated that the coefficients followed a nice pattern, decreasing steadily as other variables were added (appendix C).

However, the Stepwise Summary Table showed that although the twelve predictor variables had relatively high r-squared values, the contribution to the r-squared varied greatly among the variables, and so did the F ratios. The contribution to the r-squared ranged from .0015 (low) to .6861 (high). The F ratios ranged from 4.1398 (low) to 979.1775 (high). Table 16 illustrates those statistics.

On the basis of their low contribution to the r-squared, it was decided that variables 13 (punctuality) and 31 (upholding moral standards) should not be maintained in the best subset. Therefore, the best combination of variables for the prediction of the final grade in student teaching consists of ten variables in the following order:

1. Giving feedback to students (va. 24)
2. Motivation as a teacher (va. 10)
3. Transfer of religious beliefs in teaching (va. 32)
4. Knowledge of subject matter (va. 19)
5. Ability to establish class climate (va. 14)
6. Finding individual needs (va. 25)
7. Presentation of materials and information (va. 22)
8. Relationship with colleagues (va. 16)
9. Organization and planning of lessons (va. 20)
10. Ability to establish discipline (va. 26)
<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>R-Squared</th>
<th>Increase in R-Squared</th>
<th>F-To Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. Giving Feedback</td>
<td>.6861</td>
<td>.6861</td>
<td>979.1175</td>
</tr>
<tr>
<td>10. Motivation</td>
<td>.7444</td>
<td>.0583</td>
<td>101.9801</td>
</tr>
<tr>
<td>32. Transfer of Religious Beliefs</td>
<td>.7805</td>
<td>.0361</td>
<td>73.4106</td>
</tr>
<tr>
<td>19. Knowledge of Subject Matter</td>
<td>.8037</td>
<td>.0232</td>
<td>52.5250</td>
</tr>
<tr>
<td>14. Establishing Class Climate</td>
<td>.8163</td>
<td>.0126</td>
<td>30.3323</td>
</tr>
<tr>
<td>25. Finding Individual Needs</td>
<td>.8245</td>
<td>.0083</td>
<td>20.9117</td>
</tr>
<tr>
<td>22. Presentation of Material and Information</td>
<td>.8298</td>
<td>.0053</td>
<td>13.7918</td>
</tr>
<tr>
<td>16. Relationship to Colleagues</td>
<td>.8341</td>
<td>.0043</td>
<td>11.3629</td>
</tr>
<tr>
<td>20. Organization &amp; Planning of Lesson</td>
<td>.8373</td>
<td>.0032</td>
<td>8.5977</td>
</tr>
<tr>
<td>26. Establishing Discipline</td>
<td>.8404</td>
<td>.0031</td>
<td>8.4145</td>
</tr>
<tr>
<td>31. Upholding Moral Values</td>
<td>.8426</td>
<td>.0022</td>
<td>6.1434</td>
</tr>
<tr>
<td>13. Punctuality and Regularity</td>
<td>.8440</td>
<td>.0015</td>
<td>4.1398</td>
</tr>
</tbody>
</table>
Summary

The Stepwise Regression Program was used to analyze the best subset suggested by the All Possible Subsets Program. This best subset included twelve variables.

As a result of the stepwise analysis, two variables were not retained on the basis of their relatively low contribution to the r-squared, although they had significant F ratios: upholding moral values, and punctuality and regularity.

The combination of variables that is considered as the best to predict student teaching final grade, the criterion measure, consists of the following ten independent variables: giving feedback to students, motivation as a teacher, transfer of religious beliefs in teaching, knowledge of subject matter, ability to establish class climate, finding individual needs, presentation of materials and information, relationship with colleagues, organization and planning of lessons, and ability to establish discipline.

Summary of Findings

The results of the analysis of data for this study were interpreted with the purpose of finding correlations between the dependent variable and the independent variables. Below are the findings that emerged from this interpretation.

The Zero Order Correlation Matrix showed that individually,
1. The 31 predictor variables used in this study were positively correlated with the criterion measure. The correlation ranged from .8362 (high) to .2221 (low). Consequently, null hypothesis I was not maintained.
2. (a) As a single group, the 31 predictor variables showed a significant correlation with the criterion (F 76.561). Null hypothesis II was not maintained. (b) But when each of the predictor variables within the group was considered, it was found that only eight of them had a t-value that met the requirements for significance. Those variables were: motivation, establishing class climate, knowledge of subject matter, organization and planning of lessons, presentation of materials and information, giving feedback to pupils, finding individual needs, and transfer of religious beliefs in teaching. (c) One predictor variable was very close to significance: ability to establish discipline. It had a t-value of 1.939 (t-2.000 required for significance).

3. The 31 predictor variables were divided into categories, and each category was tested against the criterion measure. (a) It was found that category one, the student teacher's academic achievement, had a significant positive correlation with the student teacher's final grade. (b) Of the two variables included in their category, one had a significant t-value. That was the student teacher's G.P.A. for teacher education courses. College G.P.A. was not significant (table 3, p. 94). (c) Category 2, personal qualities, showed a significant correlation with the criterion measure. The four predictor variables in this category had significant t-values. Those were: enthusiasm, health and alertness, responsibility and dependability, and emotional balance. (d) Category 3, professional qualities, was also significantly correlated with the criterion measure. However, only three of the seven variables in this category had significant t-values: voice
and communication, motivation, and ability to establish class climate. When a stepwise regression analysis was run, it was found that the contribution to the r-squared of the first two variables was much higher than that of the third variable (.5557 and .1024, against .10116). (e) Category 4, interpersonal relationships, had a significant positive correlation with the criterion measure. But only two of its four variables had significant t-values: relationship with colleagues, and relationship with pupils. (f) Category 5, Teaching skills and competencies, was significantly correlated with the criterion measure. Six of the seven variables in this category had significant t-values. Those were: giving feedback to pupils, knowledge of subject matter, finding individual needs, presentation of materials and information, organization and planning of lessons, and evaluation of pupils' work. Initiative and resourcefulness, with a t-value of 1.580, was not significant. The contribution to the r-squared of two variables was relatively low: organizing and planning lessons, .0070, and evaluation of pupils' work, .0024. (g) Category 6, classroom management skills, was also significantly correlated with the criterion measure. All five variables in this category had significant t-values. Those were: ability to establish discipline, fairness in pupils' treatment, ability to handle unexpected situations, upholding school policy, ability to obtain pupil cooperation. (h) Category 7, moral and religious Commitment, showed a significantly positive correlation with the student teacher's final grade, the criterion measure. Both variables in this category had significant t-values. Those were: upholding moral values, and transfer of religious beliefs in teaching.
4. The data was analyzed with the purpose of finding the best combination of variables for predicting the student teacher's final grade. The subset with twelve variables appeared as the best. It consisted of the following predictors: giving feedback, motivation, transfer of religious beliefs, knowledge of subject matter, establishing class climate, finding individual needs, presentation of materials and information, relationship to colleagues, organization and planning of lessons, establishing discipline, upholding moral values, and punctuality and regularity. The contribution of the last two of these predictor variables was very low: .0022 and .0015, respectively.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The importance of the student teaching experience has been consistently emphasized in literature. Student teaching, the transitional experience between college life and a teaching career has been recognized to provide opportunity for assessing strengths, weaknesses, and potential as a teacher. This experience helps the prospective teacher gain confidence in the ability to apply the theory studied in college, in the classroom. This is true at both the elementary and the secondary level.

Among the broad goals of elementary education, Shane (1962) pointed to the development of basic skills, problem-solving ability, intellectual growth, development of moral values and of human relations skills. The author thought that the extent to which those goals could be attained depended on the individual teacher. Consequently, the training elementary teachers receive deserves the utmost care.

Literature suggests that college students who do well in their student teaching experience tend to do well in their teaching career after. Logically, if colleges prepare prospective teachers efficiently in view of their practicum in elementary classrooms, the result would be a successful student teaching experience.
followed by a successful teaching career. It would seem, then, that a study which analyzes the measures used in the evaluation of student teachers to determine their significance as success predictors, may be of value to teacher education.

It was the purpose of this study to investigate selected factors in order to determine whether they were related to elementary student teaching success. Thirty-two factors were selected from student teaching evaluation blanks. The first of those factors, the student teacher's final grade, was used as the dependent variable. The thirty-one other factors were used as independent or predictor variables. They were grouped into the following seven categories: (1) student teacher's academic achievement, (2) personal qualities, (3) professional qualities, (4) interpersonal relationships, (5) teaching skills and competencies, (6) classroom management, and (7) moral and religious commitments.

A data collection form was developed for the purpose of recording information from the files of 450 college students who did their student teaching experience during one of the academic years between Fall quarter 1976 and Spring quarter 1983. The information was obtained from four Seventh-day Adventist colleges that participated in the study. Because reports of studies in the area of prediction of student teaching success, as related to Seventh-day Adventist colleges, could not be located, the empirical evidence gained from this study could be useful to Seventh-day Adventist education.

The review of literature undertaken for this study was related to both teacher effectiveness and the prediction of
student-teaching success. Literature indicated that the area of teacher effectiveness had received more attention than that of student-teaching success. Furthermore, the investigations of student-teaching success had not yielded consistent results.

There was no general consensus regarding the predictive value of academic achievement, personal qualities, professional qualities, human relations. Neither was there general disagreement. There seemed to be more agreement concerning the predictive value of teaching skills and of classroom management skills. With regards to the traits of the so-called good teacher, the views seemed divergent. Literature suggested that colleges were producing different types of good teachers.

One point was consistently made by the authors read: more studies needed to be carried out in the area of student-teaching success. The literature reviewed seemed to confirm that the variables selected for this study needed to be investigated more widely.

The data collected from student teachers' files were analyzed, using computer Multiple Regression programs. On the basis of the results, it was found that: (1) The 31 predictor variables used in this study were positively correlated with the criterion, the correlation ranging from .8362 to .2221. (2) As a single group, the 31 predictor variables showed a significant correlation with the criterion, but only 8 of them made a significant contribution to the $r$-squared. (3) Each of the seven categories into which the 31 variables were grouped, indicated a significant correlation with the criterion. (4) The best combination of predictor variables
consisted of 10 out of the 31 variables tested against the criterion, namely: giving feedback, motivation, transfer of religious beliefs, knowledge of subject matter, establishing class climate, finding individual needs, presenting materials and information, relationship to colleagues, organizing and planning lessons, and establishing discipline.

Singly, the following predictor variables showed the highest positive correlations with the criterion: giving feedback (.8362), evaluation of pupils' work (.7942), finding individual pupils' needs (.7793), ability to establish class climate (.7585), motivation (.7520), presentation of materials and information (.7429), upholding school policy (.7209), organizing and planning lessons (.7195), knowledge of subject matter (.7094), health and alertness (.7082), relationship with colleagues (.6997), and ability to establish discipline (.6950).

Conclusions

The results of the data analysis, and the findings reported in chapter IV of this study provide the basis for the conclusions arrived at. Those conclusions are reported below.

1. The following predictor variables appeared as contributing to the student teacher's final grade, singly:

a. Giving feedback to pupils. The correlation between this variable and the criterion was not surprising. It is through appropriate and well-timed feedback that pupils can improve their performance. Evaluators of teachers (and student teachers) want to see whether proper feedback is given to pupils.
b. Evaluation of pupils' work. The correlation of this variable with the student teacher's final grade was somehow expected. Pupils want to be graded with fairness. A feeling of fairness helps build a positive climate which is conducive to learning. When learning occurs, the teacher is considered competent.

c. Presentation of materials and information. This variable appeared as a predictor of student-teaching success. It is one of the first things the evaluator looks for. The student teacher may have very important information and attractive materials. But if the presentation is not adequate, the very purpose may be missed. Effective presentation is a result of careful organization and planning of lessons.

d. Motivation. It would be hard for a person who is not motivated to relate to and work with children, to create in them the motivation to learn. That motivation as a teacher appeared consistently to contribute to the criterion measure in this study, was no surprise.

e. Finding individual needs and attending to them. This variable appeared to contribute to student teaching success. Children differ in very many ways from each other. The good teacher is expected to know individual pupils' interests, abilities, and learning styles in order to adapt instruction.

f. The correlation between health and alertness, and the criterion is justified by the fact that only the teacher who is in good health can put all his/her energy and enthusiasm in the job day after day. Evaluators tend to grade the alert student teacher higher than the dull one.
g. Relationship with colleagues. This variable also appeared as contributing to the final grade. The student teacher who relates well with not only the supervising teacher, but also with all the members of the faculty, will learn much from those resource persons.

h. Ability to establish discipline. The correlation of this variable with the criterion was not surprising. Learning cannot be effective in chaos. One of the first things that catches the attention of the evaluator who steps into a classroom, is the way the pupils behave. This is determined to a great extent by the teacher's classroom management style.

2. Each of the seven categories into which the 31 variables were divided seemed to contribute to the student teacher's final grade.

a. The student teacher's academic achievement. This category, with teacher education courses G.P.A., appears as a predictor of student-teaching success. Logically, the grades obtained in those courses should reflect knowledgeability in method courses, principles of teaching, psychology of learning which enables the student teacher to interact with pupils and instruct them effectively.

b. The student teacher's personal qualities. Enthusiasm, health and alertness, dependability and responsibility, and emotional balance all contributed to make this category a predictor of success. A teacher is an example. Those personal qualities will not only win the pupils' respect, trust, and cooperation, but they will be reproduced in pupils through modeling.
c. The student teacher's professional qualities. This category, with the ability to establish class climate, and motivation as a teacher, seemed to predict the criterion. After three years of preparation, the student teacher is expected to have developed qualities that would qualify him/her as a teacher.

d. The student teacher's interpersonal relationships. When relationships with colleagues and pupils were included, this category appeared to contribute to the final grade. Good relationships facilitate communications and help establish a climate conducive to learning.

e. The student teacher's teaching skills and competency. This category appeared as a predictor of success when these four variables were included: giving feedback, knowledge of subject matter, finding individual needs, and presentation of materials. A good teacher is indeed expected to have a good command of the subject matter taught, and to be able to present it effectively.

f. The student teacher's classroom management skills. This category seemed to contribute to student teaching success, with all five of its variables. The teacher who has a good control of the class does not waste time calling pupils to order. Lessons are not often interrupted. Time is devoted to learning activities.

g. The student teacher's moral and religious commitments. This category also appeared as contributing to final grade. This has special meaning in Christian schools where high moral standards are expected, and where the teachings of Christ are expected to permeate the whole environment.

3. One of the purposes of this study was to attempt to
find the best combination of variables to predict student teaching success. A subset consisting of ten variables appeared as the best predictor of success. Those variables were: giving feedback to pupils, motivation as a teacher, transfer of religious beliefs, knowledge of subject matter, establishing class climate, finding individual needs, presenting materials and information, organizing and planning lessons, relating with colleagues, and establishing discipline. This combination of variables to explain the student teacher's final evaluation seems logical. The variables are representative of categories that were found to be significantly correlated with the criterion measure.

4. It appeared that evaluators of student teachers give considerable weight to the teaching skills and competencies. Five variables from this category were selected in the best subset of variables.

5. The transfer of religious beliefs into teaching appeared as the third best predictor of success, in the best combination. This is very meaningful. The Seventh-day Adventist church places high priority on the mission of its schools. Its objectives can be met to the extent that the teachers' beliefs permeate all classroom activities.

6. It would seem that in some cases the final grade scored by student teachers did not reflect their general performance. The tendency to give high grades to student teachers first noted at the time of data collection, was confirmed by the presence of outliers on the statistical analysis plots (appendix D).
Recommendations

On the basis of the conclusions reported above, a number of recommendations have been made. They are presented here.

1. The following variables which, singly, showed high positive correlations with the criterion measure should be emphasized in the preparation of student teachers: giving feedback to pupils, evaluation of pupils' work, finding individual pupils' needs, establishing class climate, motivation, presentation of materials and information, upholding school policy, organizing and planning lessons, knowledge of subject matter, health and alertness, relationship with colleagues, ability to establish discipline, and transfer of religious beliefs in teaching. The categories to which they belong are given more consideration here.

2. It is recommended that due emphasis be given to each of the seven categories of variables, prior to the student teaching quarter, in an effort to increase the chances for a successful student teaching experience. These categories are considered individually below.

a. The Student Teacher's Academic Achievement. Under this heading, it is recommended that special emphasis be given in the preparation of student teachers, to the following teacher education courses: Introduction to the Teaching Profession, Principles of Teaching, Educational Psychology, General Elementary Methods, and Special Methods in Elementary Teaching Fields.

b. Personal Qualities. This category deserves special attention in the preparation of student teachers. Through modeling, college students can learn how to become enthusiastic about
teaching. They can be taught how to become responsible and dependable if responsibilities are entrusted to them consistently in the course of their training. They should be encouraged to read books such as E. G. White's *Ministry of Healing,* and *Education* so as to develop proper health habits.

c. Professional Qualities. It is recommended that special emphasis be given to motivation, and the ability to establish class climate. The literature points out that there is a relationship between learning and climate. Literature also suggests that the highly motivated teacher can motivate pupils to learn.

d. Interpersonal Relationships. Special emphasis should be given to relationships with colleagues and with pupils, the significant variables. It is recommended that college students be given opportunities to learn how to relate to people before their student teaching experience. Through frequent visits to elementary schools, this can be achieved. This will facilitate communication with resource persons during the student-teaching quarter. It will also facilitate the student teacher's interaction with pupils when the time comes for classroom responsibility.

e. Teaching Skills and Competencies. It is recommended that college students be helped to become knowledgeable in the content areas they will be teaching during their student teaching quarter. The more knowledgeable they are, the more they can give to their pupils. In addition, through the teacher education courses, they should become familiar with the modern approaches to instruction, and be able to use those to convey knowledge successfully to their pupils, particularly in principles of teaching, and special
methods in elementary teaching field courses.

f. Classroom Management Skills. This category is important in the preparation of college students for their student teaching experience. It is recommended that more opportunities be given to teacher education students to experience real classroom situations before their practicum, in order to develop classroom management skills. Not only was this category significantly correlated with the student teacher's final grade, but the literature supported the view that exposure to classroom situations during teacher training was not always sufficient. It was suggested that the period of time between theory and practice was often too long, and that in some colleges student teaching was almost the only opportunity for classroom contact. Brief observation periods prior to the student teaching quarter seem isolated. It is recommended that consideration be given to the possibility of linking the above-mentioned experiences by more frequent visits to elementary classrooms.

g. Moral and Religious Commitments. Since the ability to transfer religious beliefs was highly correlated with the student teacher's final grade, it is recommended that students in teacher training programs be taught systematically how to make their religious beliefs effective in their teaching. They should also be reminded to make this transfer. This training ought to be started before the student teaching quarter.

3. (a) One of the conclusions of this study was that there seemed to be a tendency to give student teachers high grades. Greater objectivity in the evaluation of student teachers is therefore recommended. A final evaluation of Satisfactory/Unsatisfactory
would solve the problem, at least in part. (b) For the sake of objectivity in the evaluation of student teachers, it is suggested that representatives of Seventh-day Adventist colleges work together to develop measurable evaluation criteria, with numerical scales, when ratings are on a continuum. The rationale behind this recommendation is that all Seventh-day Adventist colleges have a common basic philosophy and common basic goals. Common criteria would create uniformity in the preparation and evaluation of student teachers in Seventh-day Adventist colleges.

4. It is recommended that this study be replicated to involve a larger number of Seventh-day Adventist and other colleges to include other variables, and to consider not only elementary, but also middle and high-school student teachers. Such studies will help develop reliable criteria for both the evaluation and the preparation of students for their student-teaching experience. The end result will be the effective preparation of teachers.

5. Since the literature pointed out that the teacher play a central role in Christian schools, it is recommended that those college students who are looking forward to a career in a Christian school system be required to take courses in the Philosophy of Christian Education and other related courses.

6. According to theory (Smith and Meux, 1962), teaching is a social action. This study showed a significant correlation between relationship with pupils, and student-teaching performance. Consequently, it is recommended that related courses in social studies be required, prior to the student-teaching experience.

7. In the related studies referred to in this study,
self-concept seemed to affect student-teaching performance significantly (Noad, 1980). Literature suggests that self-concept is associated with motivation. This study also showed correlation between student-teaching performance and motivation. It is therefore recommended that teacher education students be helped to build their self-concept early in the program. This can be achieved through consistent experiences of success in the course of their training.

8. A number of predictor variables used in this study were not significantly correlated with the criterion when the 31 variables were considered in combination. Yet, singly, they were positively correlated with the criterion. Their contribution to the student teacher's performance should not be overlooked. Those are: (1) ability to obtain pupil cooperation, (b) punctuality and regularity, and (c) relationship with parents and the community.

The literature has associated the ability to engage pupils in learning with teaching success. It is consequently recommended that the prospective student teacher learns how to obtain pupils' cooperation without which learning would be difficult to occur.

Logically, the teacher (or student teacher) who is frequently absent or late robs pupils of their time. It is recommended that regularity and punctuality be emphasized in teacher-education courses.

Parents and teachers are expected to cooperate, for the good of pupils. This fact needs to be brought home to prospective student teachers in teacher-education courses.

In short, if college students are to be prepared for a
successful student-teaching experience, early and continued exposure to real classroom situations cannot be overemphasized. This will result in the establishing of good relations between college students and pupils, as well as classroom teachers. College professors and supervisors should work closely with prospective supervising teachers so as to bring home to them the fact that the final grade they give to student teachers is not the only thing that matters. Helping the student teachers entrusted to them all through the experience, and giving them feedback frequently and regularly are of the utmost importance. Colleges ought to devise means to attract the brightest high-school graduates to their teacher-education program. Thus, the teaching profession will be able to count on the best elements available.
APPENDIX A
Data Record Sheet
Abbreviations
DATA RECORD SHEET

Subject no . . . .

Excellent (A) Very Good (A-) Good (B+, B) Insufficient (B-, C+, C)

Dependent Va. (Criterion)
1. Student Teacher's Final Grade

Independent Va. (Predictors)

Student Teacher's Academic Achievement
2. College Grade point Average (G.P.A.)
3. Teacher Educ. Courses G.P.A.

Student Teacher's Personal Qualities
4. Enthusiasm about Teaching
5. Health and Alertness
6. Dependability and Sense of Responsibility
7. Emotional Balance

Student Teacher's Professional Qualities
8. Voice, and Ability to Communicate
9. Personal Appearance and Dress
10. Motivation as a Teacher
11. Willingness to Cooperate
12. Readiness to Accept Criticism
13. Regularity and Punctuality
14. Ability to Establish Class Climate

Student Teacher's Interpersonal Relationships
15. Relationship with Pupils
16. Relationship with Colleagues
17. Relationship with Administrators
18. Relationship with Pupils' Parents and the Community

Student Teacher's Teaching Skills and Competencies
19. Knowledge of Subject Matter
20. Organization and Planning of Lessons
21. Resourcefulness and Initiative to Find Information and Materials
22. Efficiency in Presenting Information and Materials
23. Fairness and Consistency in Evaluating Pupils' Work
24. Efficiency in Giving Feedback to Pupils
25. Ability to Find Individual Pupil's Needs and to Attend to Them

**Student Teacher's Classroom Management Skills**

26. Ability to Establish and Maintain Discipline
27. Fairness in Treatment to All Pupils
28. Ability to Handle Unexpected Situations
29. Ability to Uphold School Policy
30. Ability to Obtain Pupil Cooperation

**Student Teacher's Moral and Religious Commitment**

31. Ability to Uphold Moral Standards
32. Ability to Transfer Religious Beliefs into Subject Matter.
Abbreviations used to represent the thirty-two variables, for analysis of data by the computer:

<table>
<thead>
<tr>
<th>Variable Description</th>
<th>Abbreviation</th>
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<tr>
<td>Student teacher's final grade</td>
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<td>Responsibility and dependability</td>
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</tr>
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<td>Emotional balance</td>
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</tr>
<tr>
<td>Voice and communication</td>
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<tr>
<td>Personal appearance and dress</td>
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<tr>
<td>Motivation as a teacher</td>
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<tr>
<td>Willingness to cooperate</td>
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<td>Readiness to accept criticism</td>
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<td>Regularity and punctuality</td>
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<td>Organization and planning of lessons</td>
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<tr>
<td>Resourcefulness and initiative</td>
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R-Squared = .840327  CP (Stability) = 10.82
TABLE 19

ALL POSSIBLE SUBSETS REGRESSION
ENTER VARIABLE CORRELATION
SUBSET WITH 11 VARIABLES

| R-Squared = 0.842535 | CP (Stability) = 6.75 |

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### TABLE 20

**All Possible Subsets Regression**

**Inter-variable Correlation**

**Subset with 12 Variables**

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APPENDIX C

Table 21
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STEPWISE REGRESSION COEFFICIENTS FOR VARIABLES RETAINED IN BEST SUBJECT

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APPENDIX D

Diagrams
The plot shows how the 450 cases are distributed in relation to the mean score.
BIVARIATE PLOT: FINALG--ORG
BIVARIATE PLOT: FINALG--PRES
BIVARIATE PLOT: FINALG--INDIV
BIVARIATE PLOT: FINALG--DISCI
BIBLIOGRAPHY
BIBLIOGRAPHY


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1984 Ph.D. candidate, Andrews University

AREA OF CONCENTRATION: Educational Administration

COGNATE AREA: Instruction

PROFESSIONAL EXPERIENCE:

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1970-1971 Senior teacher and acting elementary school principal
1971-1980 Secondary and teacher education teaching
1982-  Field work in supervision of Student Teaching
1983-84 Graduate Assistant, Teacher Education, Andrews University