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Preservice teacher education:

An evaluation of two programs at the University of Northern Iowa

by

Marlene Ingraham Strathe

A Dissertation Submitted to the

Graduate Faculty in Partial Fulfillment of

The Requirements for the Degree of

DOCTOR OF PHILOSOPHY

Department: Professional Studies
Major: Education (Research and Evaluation)

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For the Graduate College

Iowa State University
Ames, Iowa

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The place of evaluation in education in general, and in teacher education specifically, has been a topic of considerable discussion in recent years. At the center of this discussion has been a concern with what should be evaluated in teacher education programs. In discussing evaluation problems in teacher education programs, Woodring concluded:

> "Programs of teacher education may be evaluated at three levels: we can make judgements about the program itself, we can judge the competence of the teachers who graduate from the program, or we can evaluate the learning of the children taught by these teachers."(53, p. 62)

Although current evaluation efforts have attempted assessment at all three of the levels Woodring suggests, historically the role of evaluation has been much more limited in both determining and effecting educational change.

Reynard(41), summarizing the research in teacher education programs prior to 1963, found abundant research related to student teaching, teacher attitudes, and programs for liberal arts graduates. Primarily this research, however, was based on questionnaire or opinionnaire surveys, usually completed by graduates of a specific teacher education program. Prior to the mid-1960's, little evidence was found related to experimentation of the total teacher education program.

By the late 1960's, the focus of research and evaluation had begun to change. Denemark and MacDonald found that during this period:

> ". . . . numerous studies reported by individual researchers showed evidence of more care in research design, with provisions for controls and systematic evaluation. For the most part, however, these projects tended to be focused on small portions of the total process of teacher preparation so that their impact seemed inevitably insignificant."(15, p. 241)

The research shift moved into the additional areas of instructional methods and media, however, most research emphasis was still placed on student teaching.

In October, 1967, the U.S. Office of Education requested proposals for model elementary education programs. In granting funds to the ten programs selected, the proposals submitted were required to set teacher education program goals in terms of expected and measureable teacher behaviors.(6) The impetus of federal funding and the program models changed the research focus to program development and in turn, evaluation focused on program outcomes. While the evaluation of outcomes became more common, generally the evaluation focused on specific, isolated areas within teacher education rather than general program research and evaluation.(5) In summary, "evaluation of entire teacher education programs, or even segments of programs, is spotty and inadequate."(46, p. 1418)

Although significant progress has been made in developing new evaluation instruments for teacher education programs and in moving from descriptive to experimental design, the current place of evaluation in teacher education programs has not kept pace with the changes in

program development. Stiles and Parker have summarized this situation as follows:

> "Teacher education programs have been studied more than researched. Innovations have tended to be implanted and initiated with a minimum of evaluation. Practices and procedures have evolved rather than developed through controlled experimentation."(46, p. 1414)

In reflecting the current impetus for program development, in May, 1973, the faculty of the University of Northern Iowa approved a program revision for the common professional sequence in teacher education. Beginning in January, 1974, the new program was to be gradually implemented over a three year period of time. Therefore, during the implementation phase, two preservice teacher education programs were operated simultaneously.

The traditional professional sequence program in teacher education at the University of Northern Iowa consisted of a three semester enrollment in a series of courses common to all students regardless of major. The components of this program are outlined in Appendix A.

The new professional sequence program components are outlined in Appendix B. This program differs from the traditional in terms of (1) smaller instructional components, (2) more clearly defined instructional areas, (3) specific attention to values and interpersonal relationships, and (4) interaction between students and various faculty members.

Statement of the Problem

The simultaneous operation of two common professional sequence programs for the preparation of teachers, therefore, affords the opportunity to assess change both within and between programs. It presents a unique possibility for both descriptive and experimental design.

The purpose of the present investigation was an evaluation of student change in the areas of academic achievement and the dimensions of personality. Specific change was evaluated both within and between programs during the first semester enrollment. Specifically, the study was designed to:

(1) determine and compare biographical information of students enrolled in the two programs,

(2) determine and compare cognitive achievement in the area of human growth and development of the two groups,

(3) determine and compare personality dimensions of both groups, and,

(4) determine and compare field experience opportunities of students in both programs.

Hypotheses Tested

The hypotheses tested by the present study were as follows:

(1) There is no significant difference in mean change performance in achievement in human growth and development of the experimental and control groups.

(2) There is no significant difference in mean change performances of personality dimensions as measured by the California Psychological Inventory (CPI) between the experimental and control groups.

(3) There is no significant difference in biographical information of students in the experimental and control groups.

(a) There is no significant difference in ACT mean performances of the two groups.

(b) There is no significant difference in mean classification of the two groups.

(c) There is no significant difference in high school class size means of the two groups.

(d) There is no significant difference in mean ages of the two groups.

(e) There is no significant difference in mean grade point averages of the two groups.

(f) There is no significant mean defferences in total hours earned of the two groups.

(g) There is no significant mean differences in total grade Points earned of the two groups.

(4) There is no significant difference in field experience opportunities of the experimental and control groups as measured by the Student Field Experience Survey.

Definition of Terms

The following terms are used operationally in the study and require particular note.

Professional Sequence refers to a sequential program consisting of a series of courses, primarily the responsibility of the Department of Educational Psychology and Foundations at the University of Northern Iowa, which are required of all students enrolled in teacher education, regardless of major. The professional sequence normally requires a three semester enrollment culminating in the student teaching experience.

Control Group refers to those students enrolled during the fall semester, 1974, in the first semester requirements of the traditional

professional sequence program, namely: 20:014 Teacher and the Child.

Experimental Group refers to those students enrolled during the fall semester, 1974, in the first semester requirements of the new professional sequence program, namely: 20:017 Field Experience: Interpersonal Interaction Patterns, 20:020 Value Clarification Seminar: Interpersonal Influence Preferences, and 20:030 Developmental Psychology Core: Dynamics of Human Development.

Human Growth and Development Core refers to that academic area devoted to the study of human biological, social, and psychological development from birth through adolescence. This core has been identified as a common component of both the traditional and new teacher education programs.

Organization of the Study

The present study is divided into six major areas. The introductory chapter summarizes briefly the role of evaluation in teacher education programs, identifies the problem and hypotheses tested and defines terms which are in the study.

The review of literature identifies the major research related to evaluation in teacher education programs and research in the area of evaluation.

The third chapter describes the methods of procedure used in the study including the subjects, instrumentation, procedures and analysis. Basic assumptions of the study and limitations on the scope of the study are included.

The fourth chapter includes the findings of the present study

in the areas of biographical information, cognitive achievement, personality dimensions and field experience performance.

The fifth chapter discusses the results of the study and the conclusions which may be drawn from those results. Limitations of the study and recommendations for future investigation are included.

The final chapter summarizes the study including a brief statement of the purpose, procedures and results of the study.

CHAPTER II

REVIEW OF LITERATURE AND RELATED RESEARCH

Introduction

Although the amount of research on specific areas of teacher education programs has increased sharply in the past few years, research support for substantial curriculum changes is very limited as Cyphert has indicated.

> "Preeminent among the many problems with which teacher education is fraught is its inability to provide for its own systematic improvement. When one considers the changes made in teacher education programs in the past decade, he is struck with the notion that the preponderant majority of those planning the improvement of teacher education are applying to the reorganization of their programs their subjective hunches and hypotheses growing out of experience. . . . The rapidity with which programs are being reorganized has increased in the last several years, but the basis for reorganization is largely nonempirical."(13, p. 146)

Thus there appears to be both a need for viewing the role of evaluation in teacher education as well as specific research related to that evaluation process.

Evaluation of Teacher Education Programs

While general agreement exists as to the need for evaluation in teacher education programs, extreme diversity is apparent with regard to what should be evaluated, how it should be evaluated, and why it should be evaluated.

Measurement applications in teacher education in the past have

largely been limited to selective admission procedures, personality testing as a predictor of effectiveness, counseling, and certification.(19) The major difficulty in all of these applications rests in the inability to define an effective teacher. In order for measurement to operate efficiently in any of the above areas, the measurement outcomes must reflect the definition of effectiveness. For this reason, most research in these areas has been largely descriptive rather than functional.

The most desirable criterion of evaluation, in teacher education, is the learning gain made by pupils who have been taught by teachers trained in a particular professional program.(39) However, the large number of variables involved make this type of evaluation extremely difficult at this particular point in time. In an attempt to identify effective teacher education programs, several other areas have been suggested as necessary evaluation points, although they are somewhat less desirable than learning gain.

First, there is a need for continued and expanded emphasis on entrance characteristics.(5) Although descriptive information has had limited value as a factor in selection, little evaluation effort has been made to view the interaction of these characteristics and programs to prepare teachers. Generally, there is a need to examine personality and attitude variables in order to determine how these may be built or modified.(14)

Secondly, evaluation efforts are needed in the area of program goals or objectives. The knowledge area has been previously an

important assessment goal, and needs continuance.(7) However, there is a greater need for course content analysis requiring the defining of goals and the measurement of the degree of competence in the attainment of those goals.(2)

Additional areas which have been suggested as necessary evaluation components include: types of instruction, the interaction of instruction and affective variables, and early field experiences,(9) Combs(7), in advocating a perceptual approach to teacher education, has indicated a need to assess a prospective teacher's sensitivity to people, and his or her beliefs about self, and beliefs about goals related to society, the school and teaching.

Recently, interest has grown in evaluating segments of professional teacher education. The American Association of Colleges for Teacher Education cited, as early as 1954, "a need for more analytical researches relative to both institutional practices and separate phases or aspects of teacher education programs.(1, p. 20) Peck and Dingman, in viewing the criterion problems of evaluation, state a need to evaluate "each important, individual component of the program."(39, p. 300) Active and continous evaluation of program components is presently viewed as the most effective means of assessing both product competency and process contribution.(54) Wolf and Farr advocate evaluation approaches which "attempt to assess the impact that teacher education programs have on those who are involved in or affected by them."(52, p. 118)

The methods of evaluation used in teacher education programs are as varied as the areas studied. The predominance of evaluation

work in the past has been primarily of the normative type, consisting of surveys of course offering, field experiences, viewpoints of public school officials, and opinions of teacher education graduates.(2) Evidence resulting from experimental research is extremely limited. Although experimental design has been shown to be the most effective means of evaluating input and product situations, evaluation studies have generally ignored this approach.(47)

Oestreich(37), in a survey of research efforts at fifty-three teacher education institutions, found the most common evaluation method to be "Hortatory Evaluation" or testimonials by program developers. When respondents were asked about their evaluation methods, the following were noted:

(1) most institutions used student course and instructor evaluations to determine salary, promotion, and tenure.

(2) pre-post assessment usually was concentrated in the area of professional knowledge and the results were not used.

(3) comparative group assessment was very uncommon and institutional policy change usually did not result when this procedure was used.

(4) most institutions felt program evaluation was sufficiently met by evaluation against accrediting standards, although most had difficulty in meeting the criteria of on-going evaluation as outlined in the accrediting standards.

Oestreich concludes:

"Generally, teacher education institutions have not done much about the evaluation of the effectiveness of teacher education programs simply because of a lack of knowledge of how the task is to be done."(37, p. 19)

Where evaluation has been done, it has often reflected a lack of sound evaluation knowledge and "in-house" bias which reflect the outcomes desired by the program originators.(38)

Various evaluation methods are desirable at various points within the professional education of teachers. It is necessary to adapt evaluation methods to the information desired. Within the framework of a total teacher education program, Woodruff(55) has suggested the following methods for evaluation:

(1) Divide the professional sequence into segments which have entry and departure points.

(2) Develop instruments which measure identifiable skills, knowledge, attitudes, personality dimensions, and behaviors.

(3) Develop local norms on the desirable measures.

(4) Profile the total length of the institutional program.

(5) Determine pre-sequence qualities and the interaction of those qualities and the program.

(6) Measure the contribution of each segment to the total program.

In summary, the areas of teacher education programs which have been researched and evaluated are varied, as are the techniques of research and evaluation. However, the combination of general and specific evaluation which is also descriptive and experimental in design is largely lacking. The evaluation component in teacher education programs has been the least effectively developed component which exists.

Research in Evaluation of Teacher Education Programs

The actual research efforts related to evaluating teacher education programs have been diffuse. Considerable research effort has been devoted to evaluating specific curricular components or instructional methods such as microteaching, programmed instruction

and sensitivity training. Research related to larger components of the teacher education programs have been very limited.

A number of research studies have described the characteristics of students entering a teacher preparation program at particular institutions. Far fewer studies have used these descriptive results in a comparative manner. In a study by Farr(20), designed to determine the type and use of measurement efforts in teacher education in 443 institutions, it was found most institutions used some form of college entrance achievement measures, usually ACT scores, as the major admissions criteria along with high school academic achievement measures. In the affective area, a wide variety of interest and personality instruments were used, primarily for normative purposes. Very little effort was found which dealt directly with the measurement of outcomes in teacher education programs.

Cook(8), in a study utilizing the personal data form, investigated the relationship of characteristics of students to graduation and entry into teaching. He found the following results:

(1) More males than females graduate, but of those graduating, more females than males enter teaching.

(2) Late entry into the teacher education program, as indicated by classification, showed a higher graduation rate, but early entry had a higher proportion entering teaching.

(3) The entry into teacher education at a higher age indicated both a lower graduation and entry into teaching rate.

(4) Transfer students had a lower graduation and entry into teaching rate.

(5) More students from rural locales enter teaching than those from urban backgrounds.

Durflinger(17), in a similar study of elementary education majors

only, found students having completed student teaching, to be less flexible, more deliberate, cautious, methodical, and rigid than students who left the university for reasons other than academic performance. No differences were found when these students were compared to students changing majors voluntarily, or those who were unable to meet university academic requirements.

Based on these comparative studies, it appears a need exists to identify, describe, and compare student characteristics related to academic performance, personality dimensions, and biographical data. Wilk, Edson and Wu(51) state the need for research which "should describe the institution's 'pool of talent' from which teacher education students are recruited."(51, p. 229)

Studies of actual instructional areas within teacher education programs have been much more limited than those related to student characteristics. In a survey of courses offered at NCATE accredited institutions, the most common offerings were educational psychology and general or introductory psychology. Most institutions also required a course in societal foundations of education. However, although most institutions designated a "common core", a series of courses undifferentiated by major was very uncommon.(30)

Studies of change occurring during the first semester of enrollment in a teacher education program have largely been designed to assess instructional differences. A study by Devault and others(16), designed to assess three different methods of teaching the basic educational psychology course, found student reaction to methods varied as much within a given type as between types. The authors

do conclude a need, however, for a variety of teaching procedures within a teacher education program.

Another study by Cornett and Butler(11) measured the effects of a team versus individual teaching approach on student achievement and on the commitment of students to teaching. Students under the team approach did show higher achievement scores on a standard achievement exam, but no differences were observed related to the decision to teach.

In an attempt to determine the value of direct experience used in conjunction with cognitive information, Ingle and Robinson(31) utilized two approaches to the teaching of human growth and development. One section of students received only classroom instruction while another section observed children two hours per week in addition to classroom work. No cognitive achievement differences were found between groups and both groups showed positive gains in their attitudes toward children, although the attitude gain of the experience group was greater than that of the nonexperience group.

It appears clear evidence is not available as to the changes which occur under varied instructional procedures. Although it is apparent cognitive change does occur, the degree of change and the interaction of program design with cognitive variables is at present unclear.

The teacher education component of field experience has been widely researched. However, field experiences within the research areas have been defined as the student teaching activity. Little evaluation has been done as to the types of activities or the value

of early field experiences. Wilhelms has distinguished clearly the purpose of these early field experiences.

> "The proper role of early experience is to help the student see reality, to find out what the problems are, to open his eyes to possibilities, and to get him comfortable with kids and schools. . . . How well the student performs in each situation is not the point."(50, p. 11)

The activities involved in these early field experiences are also widely varied. In a study of 422 institutions, Turns(49) found observation was far more frequent than participatory experiences. Goodlad found that both observation and participation were frequently hampered by time interruptions and the public school personnel were often unclear as to the purposes of field experiences.(22)

In a comparative study of pre-student teaching experiences, Marso(34) found those having experiences prior to student teaching rated professional education courses higher, achieved equal cognitive competence, and expressed a more acceptable attitude toward teaching, and a greater commitment to continue in the teaching profession.

Generally agreement is found regarding the need for and desirability of early field experiences. However, actual research related to activities in which students participated, the degree of participation and the value of that participation is very limited.

The area of research related to personality dimensions and attitudes of teachers has been extensively studied utilizing a wide variety of instruments. Attitude change has primarily utilized the Minnesota Teacher Attitude Inventory. Research findings indicate teacher education students change their attitudes during their professional education. Brim(3) found the greatest amount of change

to occur in the early phases of their education, with attitude shifts moving toward those held by faculty members. Jacobs(32) found this early movement in attitudes primarily a movement in a more democratic direction, while these attitudes shifted to a more authoritarian basis after student teaching.

Personality dimensions have been investigated extensively in efforts to predict teacher effectiveness and to identify dimensions related to successful teaching. Generally, research in this area indicates teacher candidates are more conforming, more accepting of structured situations, and more socially oriented in terms of participating and expressing social needs.(21)

The California Psychological Inventory has been used for research purposes in a variety of settings as a measure of normal personality dimensions. Students enrolled in teacher training programs generally exhibit personality dimensions related in four areas as determined by factor analysis: (1) social adjustment by conformity, (2) social functioning or poise, (3) super ego strength, and (4) capacity for independent thought and action.(35) The use of the CPI as a predictive instrument has also been investigated(24) but results have been primarily retrospective. No effort has been made to combine or relate factors identified by the CPI with other variables measured in preservice teacher education programs.

Personality dimension research and evaluation has not been as fruitful as that found in other areas. However, it is apparent, by the sheer volume of research in this area, the affective dimension of the teacher, and ultimately the preparatory program which affects

those dimensions, is considered of utmost importance.

Research efforts related to the evaluation of components of teacher education programs have widely varied. While personality variables and student teaching experiences have received much research attention, early field experiences and the interaction of program design and student characteristics have largely gone unnoticed. The comparative evaluation of preservice teacher education programs requires the evaluation of as many components of those programs as possible.

Summary

The role of evaluation in teacher education programs and the actual research related to that evaluation role clearly indicate a lack of relationship between research and professional teacher education. The literature also indicates few experimental studies, a continual question of product versus process research, and a need for research which provides immediate program feedback as well as identifying information which may be valuable as a basis for longitudinal study. As Cyphert has noted:

> "It appears that research, evaluation, and the teacher's own preparatory experiences can all merge into a single operation that has the potential of achieving the three desirable functions of developing research knowledge, providing continuous diagnostic feedback to programs, and facilitating the improvement of the individual teacher trainee."(13, p. 150)

CHAPTER III

METHODS OF PROCEDURE

Description of Subjects

All students enrolled in either 20:014, Teacher and the Child, or 20:030, Dynamics of Human Development, during the fall semester, 1974, were identified as subjects for the study. Four hundred twenty students were originally enrolled, of which 187 students were identified as the control group by their enrollment in 20:014, and 233 students were enrolled in 20:030 and, therefore, comprised the experimental group.

During the first week classes were held, all students were asked to participate in the testing program designed to assist in the evaluation of the teacher education programs. From the original enrollment lists, 390 students, or 92.9% of the possible population were pre-tested. Of these 390 students, 165 were enrolled in 20:014 and 225 were enrolled in 20:030.

Two weeks prior to the conclusion of the semester, all students were again requested to participate in the evaluation sessions. Eighty-nine 20:014 students were post-tested while 193 20:030 students participated. The post-test group represented 67.1% of the possible population and 72.3% of those students pre-tested.

Biographical information was not complete for all students in all areas. Therefore the available biographical information for all

possible subjects was utilized, while pre-and post-test results were analyzed only for those students who had participated in both testing sessions. Therefore, 282 students participated in the entire evaluation study of which 89 were designated as the control group and 193 were designated as the experimental group.

Instrumentation

Students were pre-and post-tested using a human growth and development cognitive achievement instrument and the California Psychological Inventory. At the conclusion of the field experience component for the semester, students were asked to complete the Student Field Experience Survey.

The human growth and development cognitive achievement instrument was developed within the Department of Educational Psychology and Foundations as part of a larger instrument which was designed to measure achievement in all areas of the professional sequence. The items included were submitted by faculty members whose teaching responsibilities included human growth and development. From the larger instrument, the investigator drew the items which form the current instrument.

The cognitive instrument was administered to 184 subjects during the spring semester, 1974. These subjects were also enrolled in either 20:030 or 20:014 at that time. From the test analysis, which included the item response profile and the discrimination and difficulty analysis by items, revisions were made on several individual items. The revised instrument (Appendix C) was then administered for both pre-

and post-test sessions for the current investigation.

The California Psychological Inventory(23) was selected to measure normal personality dimensions. It was also administered for both pre- and post-test sessions. National Computer Systems machine scoreable answer sheets were used with the re-useable CPI booklets.

The Student Field Experience Survey was utilized as a measure of the extent to which students were provided participatory experiences during the field experience component of the program. This instrument (Appendix D), designed by Dr. Clifford Bishop, had been used for several previous semesters as an evaluation of field experiences.

Biographical information was secured directly through the registrar's office, and therefore, a personal data form was unnecessary for the current study.

Treatment

The major distinction between the experimental and control groups was the common professional sequence program in which each was enrolled. During the first semester component of the professional sequence program, investigated in the current study, some treatment aspects were common to both programs, while some differed considerably.

Those students enrolled in 20:014, Teacher and the Child, and identified as the control group, received instruction entirely within the 20:014 enrollment. Each section of 20:014 met 4 times per week with the same instructor responsible for each session. Students received 5 hours of credit for enrollment in the course.

Human growth and development was taught within the larger framework of the course and was not specifically identified for independent credit.

Three different instructors were responsible for teaching the 5 sections of 20:014. Two of these instructors were responsible for 2 sections each while the third taught the remaining section. Each section contained 35 to 40 students.

The experimental group was enrolled in 20:030, Dynamics of Human Development, which dealt specifically with human growth and development and for which students received 2 credit hours. Two instructors were responsible for the 8 sections of this course, 4 sections per instructor, and each section met 2 times per week. Approximately 30 students were enrolled in each section.

During enrollment in 20:030, experimental group students were concurrently enrolled in 20:020, Interpersonal Influence Preferences. Sixteen sections of this course were available, each taught by a different instructor. Therefore, each section contained approximately 15 students. Students also received 2 hours of credit for enrollment in this course. This particular component of the new program differed the most from the traditional program. In this component, specific attention was directed to the affective dimension of preparing teacher education students.

Students in both groups were required to participate in field experiences. Students in the experimental group received 1 credit hour under the course 20:017 while the control group received credit within the 5 credit hours of 20:014. All students were assigned to

a teacher and classroom in one of the public schools in the Waterloo-Cedar Falls area. Each student was required to spend one 4 hour block of time per week in this field experience. Assignments were made according to the major area indicated by the student. Only one student was assigned to a teacher at any given 4 hour time block. Students participated under the same teacher for the entire semester.

Treatment differences between the groups included differences in credit hours of courses, differences in the explicitness of course content, and differences in the number of faculty members to whom each student was exposed. Common to both groups was the human growth and development cognitive content and the field experience components.

Procedure

During a faculty meeting prior to the start of the fall semester, 1974, instructors of 20:014 and 20:030 were asked to read a statement requesting student participation in the testing program. Because field experience sessions were not held during the first week of classes, all students were asked to report for testing during that normally scheduled time period.

All students were administered the same tests, given in the same order. No time restrictions were placed on the completion of the materials. Students were asked only to indicate their names on the materials. The confidentiality of results was stressed and all subjects were informed their performance in no way would affect their course grade.

Post-testing sessions were arranged by having students complete

a form indicating the date and time of testing. The administration of post-test measures was identical to that of the pre-test sessions.

The field experience surveys were completed in individual classrooms under the direction of faculty members responsible for each classroom. Because this instrument had been used routinely in the past and directions were self-explanatory, it was felt unnecessary to include this in the actual evaluation sessions scheduled for testing.

Analysis

All information was coded according to the format shown in Appendix E. All information was then transferred to IBM cards which were used in the specific analysis of data.

Biographical information for the experimental and control groups was analyzed using the t test for the difference between two means. Specifically, mean differences between the groups were tested on age of the subjects, classification of the subjects, size of high school graduating class, ACT composite scores of the subjects, total hours and grade points earned of the subjects, and the grade point averages of the subjects.

The t test was calculated by the formula:

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - (\mu_1 - \mu_2)}{S_{\bar{x}_1 - \bar{x}_2}}$$

Because the null hypothesis assumes $\mu_1 = \mu_2$, then $\mu_1 - \mu_2 = 0$, and the formula for actual calculation was:(44, p. 100)

$$t = \frac{(\bar{X}_1 - \bar{X}_2)}{S_{\bar{x}_1 - \bar{x}_2}}$$

where

$$S_{\bar{x}_1 - \bar{x}_2} = \sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}$$

and the degrees of freedom for the t test of significance are equal to $n_1 + n_2 - 2$. Significant t values at the .01 level, values greater than 2.58, or the .05 level, values greater than 1.96, on the differences between two means on any individual test indicate rejection of the hypothesis $\mu_1 = \mu_2$.

The Student Field Experience Survey was analyzed by categorizing the items into the major areas defined by the Educational Task Inventory (Ohio State University). These areas include business affairs, clerical and maintenance, evaluation, institutional affairs, instruction, planning and preparation, professional and student affairs. Mean responses were found within each category for the control and experimental groups. Analysis on the field experience component also utilized the t test for independent means. The experimental and control groups were compared in each area of field experience opportunities.

The analysis of the pre-and post-test measures of the CPI and the cognitive achievement test utilized the split-plot or nested design.(44, p. 369) This design was determined to be appropriate due to the divisions within the experimental and control groups created by course sections. Therefore, although general treatment

differences existed between the control and experimental groups, varying section treatments also existed due to different instructors assigned to the sections.

The model used for the split-plot design in this investigation was:

$$X_{ijk} = \mu + M_i + B_{k(i)} + T_j + MT_{ij} + TB_{jk(i)}$$

In this particular investigation, M represented main treatments (experimental and control groups), B represented sections within those treatments, T represented time, MT represented the group x time interaction, and TB represented the time x sections within treatment interaction.

Utilizing this design and the Statistical Analysis System (SAS), an analysis of variance on each variable was made using section means. Variables analyzed included the cognitive achievement test results, and each scale of the CPI. CPI scales were analyzed individually due to the lack of agreement on factors identified within the CPI.(12, 35) Since mean change performances between the control and experimental groups were of interest, the F test on the group-time interaction was reported. In each analysis 21 sections were used, thus the degrees of freedom were n - 1 or 20.

All information was also analyzed under the assumption of individual observations rather than section observations. Results were found to reflect the same information obtained from the section analysis. Therefore, the findings obtained from analyzing section observations were reported for this investigation.

Basic Assumptions

Several assumptions have been made in the present study as follows:

(1) Because the experimental and control groups were subdivided by sections, sections rather than individuals received treatment.

(2) Other characteristics, not directly measured in the study, are randomly distributed in the experimental and control groups.

(3) The pre-test does not interact with the treatment or influence the post-test results.

(4) Maturational changes have occurred equally among the groups over time.

(5) Attrition among the groups does not introduce bias into the study.

Delimitations and Scope

The present study was limited in its' investigation to the programs presently available at the University of Northern Iowa. Several limitations existed on the study in addition to the major one described above.

(1) Students were permitted to enroll in the program of their choice and therefore, neither random assignment nor selection was possible. Because of the lack of random samples, the design was quasi-experimental rather than a true experimental design.

(2) Faculty members were not assigned to teach in both programs, therefore teacher variability can not be completely controlled.

(3) Students were aware the two programs were being evaluated and therefore, were aware of their involvement in an educational treatment.

(4) Participation in the evaluation study was strongly encouraged, but not required. Therefore, attrition occurred and was not equal between groups.

Although the previously mentioned limitations did reduce the generalization of the results, the large number of students participating in the investigation reduced, to some extent, the effects of these limitations.

CHAPTER IV

FINDINGS

The findings of the present investigation are arranged in five sections. The first section includes the analysis of the biographical information of the subjects. The second section reports information related to cognitive achievement in human growth and development of the subjects. Section three includes the analysis of the information related to personality dimensions as measured by the CPI. The fourth section reports the results of the field experience survey and the final section summarizes the comparisons made in this study.

Biographical Information

Biographical information for the subjects was obtained directly from the registrar's office and included the following: age, classification, size of high school graduating class, ACT composite score, total hours earned, total grade points earned, and grade point average. The information was analyzed for all students identified as subjects for the study.

Age

Ho: There is no significant difference in mean ages of the control and experimental group.

The age of the students initially enrolled in each group is presented in Table 1. A comparison of the control and experimental

group indicates a t value of 6.9733, significant at the .01 level. Therefore, sufficient evidence exists to reject the null hypothesis. The mean ages of the groups, as shown in the table, indicates the control group to be approximately 2.3 years older than the experimental group.

TABLE 1

AGE OF THE STUDENTS IN THE CONTROL AND EXPERIMENTAL GROUPS

Group	n	Mean	Std. Dev.	t value
Control	187	21.812	4.515	6.9733
Experimental	233	19.549	1.822	

Classification

Ho: There is no significant difference in mean classification of the control and experimental groups.

Table 2 summarizes the classification of students within each group. The t value of 11.0404 is significant at the .01 level, thus indicating rejection of the null hypothesis. The control group is over 8 months higher in classification than the experimental group, indicating a 2 semester classification difference.

TABLE 2

CLASSIFICATION OF STUDENTS IN THE CONTROL AND EXPERIMENTAL GROUPS

Group	n	Mean	Std. Dev.	t value
Control	187	2.624	0.831	11.0404
Experimental	233	1.884	0.533	

Size of High School Graduating Class

Ho: There is no significant difference in mean size of high school graduating classes of the control and experimental groups.

No significant difference was found between the groups with regard to the size of their high school graduating classes. Table 3 indicates the t value of 0.1006 which is not sufficiently large to reject the null hypothesis.

TABLE 3

SIZE OF HIGH SCHOOL GRADUATING CLASS OF THE TWO GROUPS

Group	n	Mean	Std. Dev.	t value
Control	161	223.18	197.494	0.1006
Experimental	212	225.198	184.534	

ACT Composite Score

Ho: There is no significant difference in mean ACT composite scores of the control and experimental groups.

Table 4 summarizes the ACT composite score comparison of the two groups. The t value of .7509 was not found to be significant and therefore, the evidence is insufficient to reject the null hypothesis.

TABLE 4

ACT COMPOSITE SCORES OF THE CONTROL AND EXPERIMENTAL GROUPS

Group	n	Mean	Std. Dev.	t value
Control	154	22.052	4.328	0.7509
Experimental	209	22.397	4.328	

Total Hours Earned

Ho: There is no significant difference in mean total hours earned of the control and experimental groups.

The total number of hours earned prior to enrollment in the two programs is summarized in Table 5. The t value of 15.2327 is sufficiently large to reject the null hypothesis at the .01 level. The control group had earned an average of almost 25 more hours than the experimental group.

TABLE 5

TOTAL HOURS EARNED OF THE CONTROL AND EXPERIMENTAL GROUPS

Group	n	Mean	Std. Dev.	t value
Control	176	58.494	17.040	15.2327
Experimental	231	34.745	14.375	

Total Grade Points Earned

Ho: There is no significant difference in mean total grade points earned of the control and experimental groups.

Table 6 summarizes the total grade points earned by the control and experimental groups. The t value of 12.9602 is significant at the .01 level, thus rejecting the null hypothesis. The control group had earned a significantly larger number of grade points than the experimental group.

TABLE 6

TOTAL GRADE POINTS EARNED OF THE CONTROL AND EXPERIMENTAL GROUPS

Group	n	Mean	Std. Dev.	t value
Control	176	159.602	56.854	12.9602
Experimental	231	95.719	42.596	

Grade Point Average

Ho: There is no significant difference in mean grade point averages of the control and experimental groups.

The mean grade point averages of the two groups is reported in Table 7. The t value of 0.4561 is not sufficiently large to reject the null hypothesis. Both groups were found to have almost identical grade point averages, despite differences in total hours and total grade points earned which were previously reported.

TABLE 7

GRADE POINT AVERAGES OF THE CONTROL AND EXPERIMENTAL GROUPS

Group	n	Mean	Std. Dev.	t value
Control	176	2.727	0.530	0.4561
Experimental	231	2.751	0.508	

From the biographical information obtained on the subjects, significant differences between the groups were found on the variables of age, classification, total hours earned and total grade points earned. No significant differences were found on the variables of size of high school graduating class, ACT composite score and

grade point average. Therefore, the major hypothesis of no significant differences in biographical information of the experimental and control groups is rejected.

Cognitive Achievement

The results of the cognitive achievement measure in human growth and development are summarized in Table 8. The analysis of variance, utilizing section means, was used to test the following hypothesis.

Ho: There is no significant difference in mean change performance in achievement in human growth and development of the control and experimental groups.

The F value of .11154 is not sufficiently large to reject the null hypothesis. As expected, both groups did show cognitive growth over time.

TABLE 8

COGNITIVE ACHIEVEMENT IN HUMAN GROWTH AND DEVELOPMENT OF THE CONTROL AND EXPERIMENTAL GROUPS

	Time		
Group	Pre	Post	
Control	21.89	24.49	23.19
Experimental	22.28	25.22	23.75
	22.19	25.04	
	F = .11154 (Group x Time Interaction)		

Personality Variables

The California Psychological Inventory results in 18 scores which are transformed from raw scores to standard scores. The

major hypothesis tested in the area of personality dimensions was as follows:

Ho: There are no significant differences in mean change performances of personality dimensions, as measured by the California Psychological Inventory, between the control and experimental groups.

In this section, the results of the analysis of variance for each scale is presented. Included also is the scale purpose as given in the test manual for the CPI.(23, p. 10-11)

Do (dominance): To assess factors of leadership ability, dominance, persistence, and social initiative.

Ho: There is no significant difference in mean change performance on the dominance scale of the two groups.

Table 9 summarizes the results of the analysis of variance on the dominance variable. The F value of .16692 is not sufficiently large to reject the null hypothesis. The information does indicate both groups increased on this scale over time.

TABLE 9

DOMINANCE SCALE OF THE CPI

	Time		
Group	Pre	Post	
Control	51.01	53.06	52.04
Experimental	51.23	53.88	52.55
	51.18	53.68	
	F = .16692 (Group x Time Interaction)		

Cs (capacity for status): To serve as an index of an individual's capacity for status. The scale attempts to measure the personal qualities and attributes which underlie and lead to status.

Ho: There is no significant difference in mean change performance on the capacity for status scale of the two groups.

Cs measurements indicate no significant differences between the groups as shown in Table 10. Insufficient evidence, as shown by the F value equal to .16695, exists to reject the null hypothesis.

TABLE 10

CAPACITY FOR STATUS SCALE OF THE CPI

	Time		
Group	Pre	Post	
Control	46.88	47.84	47.36
Experimental	46.17	47.63	46.90
	46.34	47.68	
	F = .16695 (Group x Time Interaction)		

Sy (sociability): To identify persons of outgoing, sociable, participative temperament.

Ho: There is no significant difference in mean change performance on the sociability scale of the two groups.

The measurement of sociability is summarized in Table 11. The F value of .32751 indicates no significant differences between the groups and therefore, evidence does not exist to reject the null hypothesis.

TABLE 11

SOCIABILITY SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	47.32	50.04	48.68
Experimental	48.81	50.77	49.79
	48.46	50.59	
	F = .32751 (Group x Time Interaction)		

Sp (social presence): To assess factors such as poise, spontaneity, and self-confidence in personal and social interaction.

Ho: There is no significant difference in mean change performance on the social presence scale of the two groups.

Table 12 presents the results of the measurement of the social presence scale for both groups. The F value of .10759 is not sufficiently large to reject the null hypothesis.

TABLE 12

SOCIAL PRESENCE SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	51.00	53.60	52.30
Experimental	52.70	54.93	53.82
	52.30	54.61	
	F = .10759 (Group x Time Interaction)		

Sa (self-acceptance): To assess factors such as sense of personal worth, self-acceptance, and capacity for independent thinking and action.

Ho: There is no significant difference in mean change performance on the self-acceptance scale of the two groups.

Results obtained on the self-acceptance scale for both groups is presented in Table 13. The F value of .32821 indicates insufficient evidence exists to reject the null hypothesis.

TABLE 13

SELF-ACCEPTANCE SCALE OF THE CPI

	Time		
Group	Pre	Post	
Control	54.79	55.74	55.26
Experimental	56.57	58.40	57.49
	56.15	57.77	
	F = .32821 (Group x Time Interaction)		

Wb (sense of well-being): To identify persons who minimize their worries and complaints, and who are relatively free from self-doubt and disillusionment.

Ho: There is no significant difference in mean change performance on the sense of well-being scale of the two groups.

Table 14 shows the results obtained for both groups on the sense of well-being scale. The F value of 1.46392 indicates no significant difference between the two groups and fails to reject the null hypothesis. Although not statistically significant, on this variable,

the control group showed a lower post than pre-test mean while the experimental group remained the same.

TABLE 14

SENSE OF WELL-BEING SCALE OF THE CPI

	Time		
Group	Pre	Post	
Control	45.05	43.03	44.04
Experimental	44.67	44.41	44.54
	44.76	44.08	
	F = 1.46392 (Group x Time Interaction)		

Re (responsibility): To identify persons of conscientious, responsible, and dependable disposition and temperament.

Ho: There is no significant difference in mean change performance on the responsibility scale of the two groups.

The results of the measurement of the two groups on the responsibility scale are presented in Table 15. The F value of 1.20513 is not sufficiently large to reject the null hypothesis. This variable is similar to the sense of well-being variable in that mean performances of the experimental group remained stable while the control group showed a decline, although this change was not statistically significant.

TABLE 15

RESPONSIBILITY SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	45.02	44.29	44.65
Experimental	45.61	45.59	45.60
	45.47	45.28	
	F = 1.20513 (Group x Time Interaction)		

So (socialization): To indicate the degree of social maturity, integrity, and rectitude which the individual has attained.

Ho: There is no significant difference in mean change performance on the socialization scale of the two groups.

Table 16 summarizes the results of the measurement on the socialization scale for both groups. The F value of 2.05247 indicates no significant difference between the groups and therefore, insufficient evidence exists to reject the null hypothesis. This variable also indicates the experimental group remaining stable while the control group mean declined.

TABLE 16

SOCIALIZATION SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	50.26	48.21	49.24
Experimental	50.50	50.20	50.35
	50.44	49.72	
	F = 2.05247 (Group x Time Interaction)		

Sc (self-control): To assess the degree and adequacy of self-regulation and self-control and freedom from impulsivity and self-centeredness.

Ho: There is no significant difference in mean change performance on the self-control scale of the two groups.

The measurement on the self-control scale for both groups is shown in Table 17. Insufficient evidence exists to reject the null hypothesis as the F value of .01110 is not sufficiently large.

TABLE 17

SELF-CONTROL SCALE OF THE CPI

	Time		
Group	Pre	Post	
Control	44.88	43.82	44.35
Experimental	44.86	43.92	44.39
	44.86	43.89	
	F = .01110 (Group x Time Interaction)		

To (tolerance): To identify persons with permissive, accepting, and nonjudgemental social beliefs and attitudes.

Ho: There is no significant difference in mean change performance on the tolerance scale of the two groups.

Table 18 summarizes the results of the measurements on the tolerance scale. The F value of .40562 indicates no significant differences existed between the groups and therefore the null hypothesis can not be rejected.

TABLE 18

TOLERANCE SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	44.71	45.99	45.35
Experimental	45.65	47.81	46.73
	45.43	47.38	
	F = .40562 (Group x Time Interaction)		

Gi (good-impression): To identify persons capable of creating a favorable impression, and who are concerned about how others react to them.

Ho: There is no significant difference in mean change performance on the good-impression scale of the two groups.

The results on this variable are shown in Table 19. The F value of .16879 indicates no significant differences exist between the groups and therefore insufficient evidence exists to reject the null hypothesis.

TABLE 19

GOOD IMPRESSION SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	44.06	43.83	43.95
Experimental	42.75	41.97	42.36
	43.06	42.41	
	F = .16879 (Group x Time Interaction)		

Cm (communality): To indicate the degree to which an individual's reactions and responses correspond to the modal (common) pattern established for the inventory.

Ho: There is no significant difference in mean change performance on the communality scale of the two groups.

Table 20 indicates the results of the measurement of both groups on the communality scale. The F value of 4.37771 provides sufficient evidence to reject the null hypothesis of no significant differences at the .05 level. The experimental group shows a significantly higher post-test mean than the control group, whose mean performance decreased over time.

TABLE 20

COMMUNALITY SCALE OF THE CPI

	Time		
Group	Pre	Post	
Control	51.19	46.67	48.93
Experimental	51.71	50.74	51.23
	51.59	49.77	
	F = 4.37771 (Group x Time Interaction)		

Ac (achievement via conformance): To identify those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior.

Ho: There is no significant difference in mean change performance on the achievement via conformance scale of the two groups.

Table 21 summarizes the results of the measurement of this

variable for both groups. The F value of .27072 indicates insufficient evidence exists to reject the null hypothesis.

TABLE 21

ACHIEVEMENT VIA CONFORMANCE SCALE OF THE CPI

	Time		
Group	Pre	Post	
Control	47.93	47.75	47.84
Experimental	49.03	49.48	49.25
	48.77	49.06	
	F = .27072 (Group x Time Interaction)		

Ai (achievement via independence): To identify those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors.

Ho: There is no significant difference in mean change performance on the achievement via independence scale of the two groups.

Results on the achievement via independence scale are shown in Table 22. The F value of 5.37424 provides sufficient evidence to reject the null hypothesis at the .05 level. While the mean performance of the control group remained stable, the experimental group increased over time.

TABLE 22

ACHIEVEMENT VIA INDEPENDENCE SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	51.67	51.17	51.42
Experimental	51.20	53.63	52.41
	51.31	53.04	
	F = 5.37424 (Group x Time Interaction)		

Ie (intellectual efficiency): To indicate the degree of personal and intellectual efficiency which the individual has attained.

Ho: There is no significant difference in mean change performance on the intellectual efficiency scale of the two groups.

Table 23 summarizes the results of the measurement on the two groups using the intellectual efficiency scale. No significant differences were found between the two groups as evidenced by the F value of .70903 and therefore, the null hypothesis failed to be rejected.

TABLE 23

INTELLECTUAL EFFICIENCY SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	45.04	45.12	45.08
Experimental	46.65	48.03	47.34
	46.27	47.33	
	F = .70903 (Group x Time Interaction)		

Py (psychological-mindedness): To measure the degree to which the individual is interested in, and responsive to, the inner needs, motives, and experiences of others.

Ho: There is no significant difference in mean change performance on the psychological-mindedness scale of the two groups.

The results on the psychological-mindedness scale are shown in Table 24. Insufficient evidence exists to reject the null hypothesis as indicated by the F value of .01613.

TABLE 24

PSYCHOLOGICAL-MINDEDNESS SCALE OF THE CPI

	Time		
Group	Pre	Post	
Control	50.98	51.88	51.43
Experimental	50.20	50.93	50.57
	50.39	51.16	
	F = .01613 (Group x Time Interaction)		

Fx (flexibility): To indicate the degree of flexibility and adaptability of a person's thinking and social behavior.

Ho: There is no significant difference in mean change performance on the flexibility scale of the two groups.

Table 25 summarizes the information related to the flexibility scale. No significant differences existed between the groups as evidenced by the F value of .97479 which was not sufficiently large to reject the null hypothesis.

TABLE 25

FLEXIBILITY SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	53.48	53.90	53.69
Experimental	53.84	55.30	54.57
	53.75	54.97	
	F = .97479 (Group x Time Interaction)		

Fe (femininity): To assess the masculinity or femininity of interests.

Ho: There is no significant difference in mean change performance on the femininity scale of the two groups.

Information secured from the groups on the femininity scale is presented in Table 26. The F value of .54160 is not sufficiently large to reject the null hypothesis.

TABLE 26

FEMININITY SCALE OF THE CPI

Group	Time		
	Pre	Post	
Control	53.46	52.34	52.90
Experimental	53.29	51.38	52.33
	53.33	51.61	
	F = .54160 (Group x Time Interaction)		

Of the eighteen scales of the California Psychological Inventory, the analysis of variance identified 2 variables with sufficiently large F values to reject the null hypothesis. These variables,

communality and achievement via independence, were both significant at the .05 level. The identification of two variables constitutes sufficient evidence to reject the general hypothesis of no significant differences in personality dimensions of the two groups.

Field Experience Performances

The opportunities for participation in various teaching related tasks, as identified in the Student Field Experience Survey, were categorized into eight major areas: business affairs, clerical and maintenance tasks, evaluation, institutional affairs, instruction, planning and preparation, professional and student affairs. The general hypothesis tested was:

Ho: There is no significant difference in mean field experience opportunities of the experimental and control groups.

Table 27 summarizes the comparisons of the two groups in each of the major areas.

Significant differences, at the .05 level, were found between the groups in the areas of clerical and maintenance, institutional affairs, and planning and preparation. In the areas of instruction, professional, and student affairs, significant differences were found between groups at the .01 level. Only the areas of business affairs and evaluation failed to show significant differences between the groups. In all areas where differences were found, the control group indicated a higher frequency of participation than the experimental group. Because significant differences were found in six of the eight areas, sufficient evidence exists to reject the null hypothesis.

TABLE 27

FIELD EXPERIENCE PERFORMANCE OF THE CONTROL AND EXPERIMENTAL GROUPS

Area	Group	Mean	Variance	t value
Business Affairs	Control	2.1535	.4888	1.1250
	Experimental	2.0824	.5658	
Clerical and Maintenance	Control	2.1699	.5942	2.3775*
	Experimental	2.0748	.7025	
Evaluation	Control	2.1762	.5423	.9656
	Experimental	2.1341	.6805	
Institutional Affairs	Control	2.4480	.4712	2.2751*
	Experimental	2.3438	.6100	
Planning and Preparation	Control	2.2475	.6028	2.0934*
	Experimental	2.1780	.6973	
Instruction	Control	2.1708	.6622	4.2189**
	Experimental	2.0185	.7213	
Professional	Control	2.2261	.5951	3.1900**
	Experimental	2.0985	.6496	
Student Affairs	Control	1.9564	.6344	5.2563**
	Experimental	1.7903	.6422	

* Indicates Significance at the .05 Level

** Indicates Significance at the .01 Level

Summary

The findings of the present investigation indicate significant differences were found between students involved in the experimental and control groups. In the area of biographical information, the

control group was significantly older, was of a higher classification, and had earned more total hours and total grade points than the experimental group. No differences were found between the groups in the areas of ACT composite scores, grade point averages, and size of high school graduating class. Therefore, the general hypothesis of no significant difference in biographical information of students in the experimental and control groups was rejected.

In the area of cognitive achievement in human growth and development, insufficient evidence existed to reject the null hypothesis. Both groups did show cognitive gain over time.

Two of the CPI scales were found to show significant differences between the groups. The communality scale and the achievement via independence scales both indicated rejection of the null hypothesis at the .05 level. Therefore, the general hypothesis of no significant differences in personality dimensions of students in the experimental and control groups was also rejected.

Six of the eight areas of field experience opportunities were found to differ significantly between the two groups. The control group indicated a higher frequency of participation in the areas of clerical and maintenance, institutional affairs, planning and preparation, instruction, professional, and student affairs. Therefore, the general hypothesis of no significant differences in field experience opportunities of the experimental and control groups was also rejected.

CHAPTER V

DISCUSSION AND CONCLUSIONS

Discussion

The results of the present study indicate differences did exist between students enrolled in two preservice teacher education programs at the University of Northern Iowa. However, major differences resulted in the areas of biographical information and field experience performances, both of which were not directly a function of the programs.

In the area of biographical information, the control group students were found to be older and approximately a year above the experimental group in classification. This classification and age difference is also reflected in the total hours and grade points earned.

The particular setting in which this investigation was conducted, did not allow for either random assignment or selection of participants. The biographical differences, found in the original groups prior to the actual participation of the students in either program, indicated a nonequivalent group situation existed initially.

Two possible explanations for these biographical differences exist. First, higher classification students are given registration preference and therefore, selected, voluntarily, the traditional program. Because the numbers of students allowed in any given course is

limited, older students may have filled the available openings in the traditional program before lower classification students had an opportunity to register.

Secondly, higher classification students may have selected the traditional program because of their delayed decision to enter teacher education. The traditional program would allow a student to complete all of the common professional sequence program, including student teaching, in a three semester period. The revised program, however, would require three and a half semesters in order to complete the full program. Therefore, the higher classification student would have found the traditional program commitment shorter.

It appears, in light of these factors, students did not select a program on the basis of program merits. Rather, it appears more reasonable to conclude, enrollment decisions were made by the control group on the basis of expediency of the program, and the experimental group, by making an early commitment to teacher education, were forced to select and selected the revised program.

In the area of cognitive achievement, no significant differences were found between the groups. Both groups did show improvement over time, although change was less apparent than might have been expected. Although questions were submitted by faculty members responsible for teaching in area of human growth and development, either the questions were not entirely reflective of the content taught or the emphasis within the classrooms differs from the questions submitted. It is also difficult to emphasize the importance of maximal performance on a measure such as this, when it is not possible

to either penalize or reward the performance.

Of the dimensions of personality measured by the CPI, the communality and the achievement via independence scales were found to be significantly different between the groups.

The communality scale is designed to measure how close an individual scores to the "common response pattern". On this scale, the control group decreased while the experimental group remained relatively stable.

The communality scale is composed of only 28 items which were selected because of the general agreement of responses from subjects tested. Therefore, it is an extremely skewed distribution. Because of this extremely concentrated distribution, change in response to a few items can affect the score markedly. Reliability coefficients on this scale range from .38 to .58, the lowest of the 18 scales of the CPI. This scale is commonly used with the good impression (Gi) and the sense of well-being scale (Wb) to determine invalidity in the test results.

Because no significant differences were found on the Wb and Gi scales, it does not appear the control group decrease on this scale is due to test invalidity. Rather, two possible explanations appear feasible.

First, the low reliability of the scale itself may have resulted in significant differences between the groups on the post-test. Because scores markedly change on the basis of a few item changes and because the control group was much smaller than the experimental, significant differences between the groups may be reflecting scale

reliability rather than actual group differences.

Secondly, the control group was found to be older and of a higher classification than the experimental. It would be expected that older individuals would be less concerned with making what would be considered "common response patterns" than younger subjects. The decrease noted in the control group may be a maturational development.

The achievement via independence scale was also found to indicate significant differences between the groups. This scale was developed to identify achievement via autonomy and independence. Reliability coefficients on this scale range from .57 to .71. On this scale, the control group remained stable while the experimental group increased.

Of the variables found to differ between the groups this appears to be the only one reflective of program differences. The purpose of the value clarification seminar (20:020) was to provide a small group atmosphere in which students could explore their own attitudes, beliefs and preferences about teaching. The seminar encouraged and supported varying opinions and ideas. The differences found between the groups on this scale appear to reflect the encouragement of autonomy and independence which the seminars promoted.

The most apparent differences between the groups were found in the field experience area. Of the eight areas, six were found to show the control group perceiving significantly more opportunities for participation than the experimental group. It is also interesting to note the largest two areas of difference, instruction and student affairs, were both areas in which contact was direct with the public

school student.

The field experience differences are largely a function of age differences because this area was common to both programs, but was not directly influenced by the program instruction. Generally, the older student had made a greater teaching commitment and was probably more aggressive in seeking and participating in teaching activities.

The younger students, on the other hand, may have been less certain of their career choice. Therefore, they may have been more willing to simply observe or participate only when requested. Their contacts with individual students, in the areas of student affairs and instruction, may also reflect this lack of confidence and maturity found in the control group.

Conclusions

Although differences were found between the groups in several areas, these differences appear to be primarily reflective of the age and classification differences which were present initially. Measurements in the areas of personality dimensions and cognitive achievement generally did not indicate either program as effecting student performance in these areas. Only the achievement via independence scale on which the experimental group increased, appeared to reflect change which might reflect direct program influence. The area of greatest difference, field experiences, was common to both programs and the differences found were primarily reflective of age differences.

The findings of the present investigation indicate no substantial

differences were found in the experimental and control groups which were reflective of the actual programs in which each group was involved. The lack of substantial student change as a result of enrollment in the preservice teacher education program indicates a need to more clearly define the programs. This includes the need to explicitly define the program objectives in measureable terms. These objectives should identify both cognitive and affective outcomes of the program. From these objectives, it would then be possible to develop instruments which would more accurately measure program outcomes, and in turn provide a more meaningful evaluation of preservice teacher education.

Limitations

The major limitation on the present investigation is the initial student enrollment in the two programs. Students could neither be randomly selected or assigned to programs, and therefore, initial differences were present. These initial differences also affected some of the measurements made during the study.

The study is also limited due to an unequal attrition rate between the groups. It was possible to strongly encourage, but not to directly require, participation in the study. The unequal attrition may have introduced a bias in the post-test results, particularly in the control group.

Finally, the study is limited by the inability to equalize instruction to all sections. Instructor variability may have reduced any variability which had been a direct result of the programs.

Recommendations

The results of the present investigation generate several areas for future study. The initial biographical information and the personality dimension measurements provide information which may be utilized in a longitudinal study of these students over the entire professional sequence program.

The field experience performance information might also be used to determine the types of field experiences presently available as well as those which students are not receiving. The information obtained might be used to examine the effects of early field experience opportunities on student teaching performance or even later teaching performance.

Finally, the information gathered in this study might be utilized as prediction information for either performance later in the professional sequence or performance after graduation.

CHAPTER VI

SUMMARY

The major purpose of the present study was to evaluate and compare the performances of students, enrolled in the traditional and revised teacher education programs at the University of Northern Iowa, in the areas of cognitive achievement, biographical information, personality dimensions and field experience performances. The students participating in the study were enrolled in the first semester component of each program.

Of the original 420 students enrolled, 390 were pre-tested using a cognitive test of human growth and development, and the California Psychological Inventory. Of this group, 282 students post-tested of which 89 were in the control group and 193 were in the experimental group. Students were post-tested on the same measures used for pre-testing. Additionally, students completed the Student Field Experience Survey.

Four general hypotheses were tested in the present investigation.

(1) There is no significant difference in biographical information of students in the experimental and control groups.

(2) There is no significant difference in mean change performance in achievement in human growth and development of the experimental and the control groups.

(3) There is no significant difference in mean change performances

of personality dimensions as measured by the CPI between the experimental and control groups.

(4) There is no significant difference in field experience opportunities of the experimental and control groups as measured by the Student Field Experience Survey.

Within these areas, specific variables tested included age, classification, size of high school graduating class, ACT composite scores, total hours and grade points earned, and grade point averages. A cognitive achievement measure, all scales of the CPI, and eight areas of field experience opportunities were examined.

All students initially enrolled in the first semester components of the two teacher education professional sequence programs at the University of Northern Iowa, were identified as subjects for the study. Biographical information was secured for these 420 students.

The biographical information was analyzed by using a t test for independent means. The field experience information was grouped into eight areas and the results were analyzed by t tests for independent means in each area. The cognitive achievement and CPI variables were analyzed by analysis of variance in a split-plot design. The design was selected due to treatment by sections rather than individual treatment.

In the area of biographical information, significant differences were found between the groups in the areas of age, classification, and total hours and total grade points earned. The control was found older and almost a full year ahead of the experimental in classification. On the basis of these findings, the first general

hypothesis was rejected.

In the area of cognitive achievement, both groups improved over time, although no significant differences were found between the groups. The evidence was insufficient to reject the second general hypothesis.

Of the CPI scales, communality and achievement via independence were found to be significantly different for the two groups. The communality scale indicated the control group had decreased over time while the achievement via independence scale indicated the experimental group increased over time. Only the latter scale appeared to reflect program influence. Because two of the scales were statistically significant, the third general hypothesis was also rejected.

The field experience performances were classified into eight general areas of teaching duties. Of these eight areas, six, clerical and maintenance, institutional affairs, planning and preparation, instruction, professional and student affairs, were found to significantly differ between the two groups. In all of these areas, the control group perceived more opportunities to participate than the experimental group. The evidence was sufficient, in this area, to reject the fourth general hypothesis.

The differences noted between the groups were determined to be largely a function of initial biographical differences, rather than actual changes resulting from program influences. Therefore, although three of the four major hypotheses were rejected, the evidence available does not indicate either program produced substantial student change in the areas studied.

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APPENDIX A

THE COMMON PROFESSIONAL SEQUENCE

THE COMMON PROFESSIONAL SEQUENCE

20:014 The Teacher and the Child - 5 Hours

Appraisal of the teaching profession; introduction to the field of teaching; psychology of child growth and development from birth through young adult age level.

20:016 Psychology of Learning - 5 Hours

Exploration of teaching strategies for learning and significant change in students.

25:118 Social Foundations of Education - 4 Hours

The school as a social institution; organized and informal community controls; current philosophies of education; teacher responsibilities for curriculum and professional ethics.

28:1— Student Teaching - 8 Hours

APPENDIX B

THE REVISED COMMON PROFESSIONAL SEQUENCE

THE REVISED COMMON PROFESSIONAL SEQUENCE

First Semester

20:017 Interpersonal Interaction Patterns - 1 Hour

Direct and indirect experiences focused on the dynamics of classroom groups.

20:020 Interpersonal Influence Preferences - 2 Hours

Consideration of the use of authority and power in classroom management/guidance functions. Emphasis upon leadership styles as an interaction of personal needs and varied interpretations of authority and power.

20:030 Dynamics of Human Development - 2 Hours

Introduction to behavioral characteristics of individual development; basic developmental principles, age-stage characteristics, and provisions community, family, and school make in the development of children and youth.

Second Semester

25:020 Educational Purposes and Practices - 2 Hours

Critical analysis of educational problems and issues, potential solutions; the examination of contemporary positions on education purpose and form.

25:030 The Community and the Curriculum - 2 Hours

Socio-political forces which shape school policy and curriculum.

Third Semester

20:040 Nature and Conditions of Learning - 3 Hours

Cognitive, affective, and psychomotor learning processes; including behavior, modification, concept learning, problem solving, creativity, attitude formation, and skill learning.

25:050 Classroom Evaluation Instruments - 2 Hours

Preparation and use of objective and subjective assessment devices.

28:1— Student Teaching - 8 Hours

APPENDIX C

HUMAN GROWTH AND DEVELOPMENT COGNITIVE INSTRUMENT

TEST BOOKLET NUMBER _____

On the following pages are a series of questions concerned with human growth and development. Read each question carefully and select the correct answer. Select only one answer for each question. Answer all questions, even though you may be unsure about some. Place your answers on the separate answer sheet provided. Make no marks on the test booklet. When you finish check your answer sheet to be sure each question has been answered. When you have completed checking your answer sheet, return the test booklet and answer sheet to the examiner.

1. Of the following, which would be most likely to manifest the lowest score on a vocabulary test at age 3?
    1. A twin
    2. An only child
    3. The oldest child in a family
    4. The second-born child in a family

2. The period from birth to approximately two years is a time of rapidly increasing muscle control. Piaget has labeled this time the
    1. motorific period.
    2. sensori-stimulus period.
    3. sensori-motor period.
    4. stimulus-motor coordinative period.

3. At what age does the child generally go through the negativistic stage?
    1. 1 - 2
    2. 2½ - 4
    3. 4 - 6
    4. none of the above

4. Generally the most effective way for parents to deal with the preschool child having a temper tantrum is
    1. to spank him
    2. to send him to his room
    3. to attempt to interest him in something else
    4. to ignore him, if at all possible

5. Moro and Babinski responses are similar in that they both represent:
    1. the effects of early learning
    2. reflexive behavior
    3. early social behavior
    4. the influence of reinforcement

6. There appear to be striking differences in the early formative years between boys and girls in the ease with which they adopt appropriate sex roles. The primary reason for this difference appears to be
    1. that the boy gets his instruction secondhand while the girl is carefully instructed first hand.
    2. that since identification is a major way in which the young child learns about his environment, the boy is, in effect, provided with no model.
    3. that since identification is a major factor in role expectation, the girl is provided several adequate models and the boy receives primarily secondhand information.
    4. the unique combination of modeling, identifying, and maturation interacting to produce conflicts in the boy as a result of the lack of information provided by the females around him.

7. Of the following, the <u>incorrect</u> statement is
    1. girls tend to talk more than boys
    2. boys' sentences usually are terse
    3. among same-age children, girls' vocabularies excel those of boys
    4. speech defects are more common among girls than among boys

8. In which stage is love and affection focused on the mother, especially by boys?
    1. oral stage
    2. anal stage
    3. phallic stage
    4. adolescence

9. The close correlation between the fears of children and those of their parents reflects
    1. an inherited sensitivity to certain emotional stimuli
    2. an inherited potential that makes for similarity in what constitutes a fear stimuli, e.g., physical inadequacy
    3. the influence of heredity on emotional predispositions
    4. the role of imitation as a factor in emotional development

10. A possible result when a child enters the first grade and experiences almost constant failure in his attempts to read is that he will develop a negative self-concept related to his own ability. The most probable consequence of this might be
    1. a detrimental effect on further efforts.
    2. an enhancement of effort on future attempts.
    3. increased self-motivation toward school subjects.
    4. the development of feelings of inferiority which are permanent.

11. Which of the following is <u>not</u> true of infantile emotional behavior? The infant
    1. has a limited response pattern
    2. lacks emotional depth
    3. displays highly differentiated emotional patterns
    4. responds to fewer stimuli than he will later

12. Which of the following is generally the greatest determinant of childhood friendships at the early elementary school level?
    1. similarity in socio-economic status
    2. similarity in intelligence and academic competence
    3. nearness or proximity of residence
    4. friendship of the parents

13. The greatest influence upon personality development comes from
    1. the family group
    2. playmates and peers
    3. religious leaders
    4. the school

14. "Critical periods" are:
    1. times when children are likely to be ill
    2. key experience periods, influencing later behavior
    3. applicable only to lower animals
    4. periods of stress in the home

15. Most of the developmental norms indicate that "walking alone" occurs between the:
    1. ninth and eleventh months of life
    2. eleventh and thirteenth months of life
    3. thirteenth and fifteenth months of life
    4. fifteenth and seventeenth months of life

16. The fact that the infant can lift his head during the first week of life but cannot stand on his feet until the end of the first year is evidence for the:
    1. proximodistal trend in development
    2. mass to specific trend in development
    3. large to small muscle trend in development
    4. cephalocaudal trend in development

17. A male child is produced when
    1. a male sperm carrying an X chromosome unites with an egg containing a X chromosome
    2. a male sperm carrying an X chromosome unites with an egg containing a Y chromosome
    3. a male sperm carrying a Y chromosome unites with an egg containing an X chromosome
    4. any of the above; it is a matter of chance

18. True self-discipline implies socially acceptable behavior based on
    1. fear of punishment for misbehavior
    2. an understanding of the moral and social issues involved
    3. an immutable adherence to rules and regulations
    4. a firm conviction that the individual stands only to lose by violating the social code

19. The most common way in which the environment influences prenatal development is through:
    1. the emotional state of the mother.
    2. abrupt changes in atmospheric conditions.
    3. massive doses of ionizing radiation.
    4. transmission of substances from the mother's bloodstream to the baby's via the placenta.

20. Which is the correct order?
    1. zygote, embryo, fetus.
    2. zygote, fetus, embryo.
    3. embryo, zygote, fetus.
    4. fetus, zygote, embryo.

21. The real carriers of hereditary characteristics are
    1. the chromosomes
    2. the genes
    3. the nucleus of the cells
    4. the X and the Y chromosomes

22. Which of the following conditions would be most likely to impede the identification of a male child with his father:
    1. A highly feminine mother
    2. A nurturant father
    3. An indulgent mother
    4. A father disapproved of by the child's mother

23. Consider two identical twins, Roger and Tim. Roger's bowel training is initiated when he reaches the age of 1 year. Tim does not encounter his training until age 18 months. Other things being equal, our most accurate statement would be that:
    1. Roger will achieve bowel control in a shorter time than Tim.
    2. Tim will achieve bowel control in less time than Roger.
    3. Both will achieve bowel control at about the same age.
    4. There is no evidence whatsoever to permit a prediction.

24. The stage which corresponds to the elementary years according to Freud is the
    1. oral stage
    2. anal stage
    3. phallic stage
    4. latency stage

25. Frequently a child, when caught in a wrong-doing, will claim he does not know why he did it. The teacher's reaction should probably be
    1. to accept the statement as true
    2. to realize the child is lying to protect himself
    3. to refer the child to a school psychologist
    4. to insist that the child give the reason for his behavior

26. We are often frustrated in our attempts to change behavior in children because the unacceptable behavior is
    1. a deep-seated result of habituation
    2. not seen from the child's frame of reference
    3. a symptom of a condition we do not readily observe
    4. self-reinforced by the reduction of tension it affords the child

27. Which of the following is likely to be the greatest threat to an emotionally insecure child
    1. no discipline at all
    2. severe but consistent discipline
    3. over-indulgent discipline
    4. adult-imposed discipline

28. A mother's attitude toward her baby may be affected by:
    1. whether it is a boy or a girl
    2. physical attractiveness
    3. responsiveness of the baby
    4. all of the above

29. Children with very high intelligence are ordinarily
    1. above average in physique and in social accomplishment
    2. below average in both technical and artistic abilities
    3. below average in general physical stamina
    4. inclined to withdraw and become introverts in the adolescent period

30. Which of the following receive primary emphasis in preschool programs for disadvantaged?
    1. social skills
    2. language skills
    3. conceptual training
    4. manipulative skills
    5. perceptual training

31. Emotional behavior is learned by
    1. trial and error.
    2. instruction.
    3. imitation.
    4. indoctrination.
    5. all the above.

32. Adolescents tend to get information concerning heterosexual relations largely from
    1. discussions with parents and religious leaders.
    2. schools and special curricula.
    3. peers and older adolescents.
    4. youth workers and leaders in social agencies.

33. Social development in preadolescence is most likely to be characterized by
    1. identification with peers
    2. puppy love
    3. independent play activities
    4. greater display of affection for parents
    5. sincere interest in the other sex

34. Of the following, the most important in developing a healthy concept of self is
    1. achievement that begets approval from adults
    2. learning skills that foster independence
    3. rapid language development
    4. being wanted and approved
    5. having robust physical health

35. An exception to the principle that growth takes place most rapidly in the early years is apparent in development of
    1. personality
    2. head size
    3. intelligence
    4. leg growth
    5. sex organs

36. The present emphasis in human development is upon
    1. separate aspects of growth
    2. understanding of the individual as a whole
    3. physical aspects of growth
    4. behavior disorders

37. Most developmental abnormalities arise during the
    1. embryonic period
    2. neonatal period
    3. germinal period
    4. fetal period

38. The tendency for adolescents to conform to peer standards stems primarily from
    1. their natural tendency toward submission
    2. their previous training in conforming
    3. their need for acceptance and security
    4. their need to remain inconspicuous
    5. their inability to provide their own (individual) direction

39. The concept of "developmental tasks" refers to
    1. learnings which the social group expects members to master in a certain age period
    2. learnings which must be completed by maturity
    3. learnings which depend primarily upon the maturation of inherited structure
    4. skills, the mastery of which depends almost exclusively upon physiological maturation

40. The recommendation that children not be exposed to formal reading instruction until they reach a mental age of 6½ years is an illustration of the principle that
    1. growth is most rapid in the early years
    2. each individual has his own rate of growth
    3. the effect of training depends on maturation
    4. growth is sequential
    5. growth rates tend to remain constant

41. A characteristic of the lower social class, illustrated by early marriage and curtailed education, is
    1. desire for immediate satisfaction of wants
    2. lack of religious orientation
    3. lack of education
    4. tendency to delay impulse gratification
    5. a moral code which deviates from social class orientation

42. The influence of the gang on older children is
    1. not seen in their outward behavior
    2. mainly on their speech
    3. due to children's feeling of insecurity
    4. counteracted by home influences

43. Religious doubting in early adolescence is
    1. little influenced by school studies
    2. greater in girls than in boys
    3. a sign of emotional instability
    4. essential to revision of childish concepts of religion

44. The psychological effects of puberty are
    1. minor and transitory
    2. influenced by the individual's psychological preparation for the changes
    3. negative and of a lasting nature
    4. favorable because pubescents are happy to be growing up

45. Inadequate opportunity to experience large varieties of stimulation causes the disadvantaged child to
    1. become inflexible with age
    2. develop a restricted vocabulary
    3. to suffer both visual and auditory impairment
    4. have more trouble seeing than hearing
    5. have more trouble hearing than seeing

APPENDIX D

STUDENT FIELD EXPERIENCE SURVEY

COLLEGE OF EDUCATION
Department of Educational Psychology and Foundations
UNIVERSITY OF NORTHERN IOWA
Cedar Falls, Iowa 50613

STUDENT FIELD EXPERIENCE SURVEY

We are interested in obtaining information concerning the kinds of experience you have had in your recent field experience in the school to which you were assigned. This is merely a survey of the extent to which each student is provided an opportunity to engage in a wide range of teaching functions; this is not an evaluation of you personally and will not be utilized for this purpose. The survey will help us plan for better field experiences for our teacher education students.

Directions:

1. At the top of the machine record answer sheet:
   a. Where it says school, please write the name of the school at which you participated. (Note: In case it was Lincoln, please place after it the appropriate designation: C.F. or Wl.)
   b. After Grade or Class enter the grade/class level of your assignment.
   c. After Instructor, write the name of the person with whom you worked.
   d. After Name of Test, please enter the number and name of the education course in which you were enrolled at the time you did your field experience.
   e. After Part, enter your major.
   f. After #1, enter the grade level at which you hope to obtain your first teaching assignment.

2. On the Answer Sheet, please mark each item with one of the following:
   a. #1 for Frequently.
   b. #2 for Occasionally.
   c. #3 for Never.

During my field experience, I had the opportunity to:

		FREQ.	OCCAS.	NEVER
1.	work with more than one teacher.	1	2	3
2.	evaluate students performance in some subject or activity.	1	2	3
3.	become familiar with the school policies and procedures as they apply to teachers.	1	2	3
4.	become familiar with the grading system and procedure.	1	2	3
5.	grade objective materials or tests.	1	2	3
6.	learn what office equipment is available for the teacher's use.	1	2	3
7.	perform clerical duties when necessary.	1	2	3
8.	be responsible for attendance records.	1	2	3
9.	become familiar with classroom tests, references, and resource materials.	1	2	3
10.	distribute and collect classroom materials.	1	2	3
11.	know students' names.	1	2	3
12.	become familiar with student behavioral characteristics.	1	2	3
13.	establish rapport with students.	1	2	3
14.	become familiar with individual student projects and activities.	1	2	3
15.	become familiar with and use learning resources within the school and the community.	1	2	3
16.	tutor individual students when needed.	1	2	3
17.	perform tasks which help me achieve and demonstrate poise in the classroom.	1	2	3

		FREQ.	OCCAS.	NEVER
18.	work within small groups as a facilitator.	1	2	3
19.	become familiar with the subject matter to be covered during the semester of your field experience.	1	2	3
20.	have the opportunity to evaluate yourself.	1	2	3
21.	establish rapport with the professional staff.	1	2	3
22.	cooperate with the professional staff in making or facilitating plans.	1	2	3
23.	know the long-range objectives of the class.	1	2	3
24.	give suggestions and ideas to the teacher.	1	2	3
25.	show initiative in helping with preparation for class, cleanup, group time, and such.	1	2	3
26.	help care for the room and equipment.	1	2	3
27.	help collect library and resource materials for use in class.	1	2	3
28.	help with a field trip.	1	2	3
29.	help with hall or playground supervision.	1	2	3
30.	observe other teachers.	1	2	3
31.	devise lesson plans.	1	2	3
32.	teach a lesson.	1	2	3
33.	identify students who have special learning problem.	1	2	3
34.	identify wherein each student is talented or unique.	1	2	3
35.	identify special interests of students.	1	2	3

		FREQ.	OCCAS.	NEVER
36.	construct bulletin boards, make displays.	1	2	3
37.	become familiar with the general arrangement of the entire school plant.	1	2	3
38.	become familiar with the immediate community surrounding the school.	1	2	3
39.	become familiar with the home environments from which the students come.	1	2	3
40.	keep a daily log, diary, or notebook in which I record procedures, ideas that interest me, and questions concerning the teaching situation.	1	2	3
41.	become familiar with the regulations concerning such matters as the playground rules, discipline code, fire drill, tornado drill, bus.	1	2	3
42.	work in a planning or curriculum session with the teacher(s).	1	2	3
43.	write instructional objectives for any subject area.	1	2	3
44.	visit a teachers' meeting or a meeting with parents.	1	2	3
45.	discuss with the teacher the policies on classroom discipline.	1	2	3
46.	participate in social activities with the students.	1	2	3
47.	make an evaluation instrument to appraise student learning.	1	2	3
48.	assist the pupils in charitable or extracurricular activities.	1	2	3
49.	establish effective personal relationships with pupils who have been hard to reach.	1	2	3
50.	work with the teachers' professional organization, such as the I.S.E.A.	1	2	3

APPENDIX E

CODING FORMAT

CODING FORMAT

Card Number	Column Number	Information
1	1-6	ID. Number
	7	Card Number
	8-23	Name
	24	Group (1 = 20:014, 2 = 20:030)
	25	Section Number
	26	Values Section Number
	27	Sex (1 = Male, 2 = Female)
	28-29	Age
	33-35	Size of High School Class
	36-37	ACT Composite Score
	38-40	Total Hours Earned
	41-43	Total Grade Points Earned
	44-47	Grade Point Average
2 & 3	43-44	Cognitive Score
(#2 = Pre-test	45-46	Do
#3 = Post-test)	47-48	Cs
	49-50	Sy
	51-52	Sp
	53-54	Sa
	55-56	Wb
	57-58	Re
	59-60	So
	61-62	Sc

Coding Format-Continued.

Card Number	Column Number	Information
	63-64	To
	65-66	Gi
	67-68	Cm
	69-70	Ac
	71-72	Ai
	73-74	Ie
	75-76	Py
	77-78	Fx
	79-80	Fe