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A COMPARISON OF THREE GROUPS OF TEACHER TRAINEES' CONCEPTUAL
AND PHILOSOPHICAL ORIENTATIONS

by

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This dissertation submitted by John H. Kelleher in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota is hereby approved by the Faculty Advisory Committee under whom the work has been done.

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Permission

Title A COMPARISON OF THREE GROUPS OF TEACHER TRAINEES' CONCEPTUAL
AND PHILOSOPHICAL ORIENTATIONS

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Degree Doctor of Philosophy

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ABSTRACT

Problem

The purpose of this study was twofold: first, to determine the differences among the subjects in the three elementary teacher training programs offered at the University of North Dakota (UND) during the spring semester of the 1970-71 school year; and second, to determine the relationships between the Conceptual Systems Test (CST) variables and the Ross Educational Philosophical Inventory (REPI) variables.

Procedure

The subjects for this study consisted of juniors and seniors enrolled in the three elementary teacher training programs offered at UND during the spring semester of the 1970-71 school year. The three elementary teacher training programs were: College of Education; New School of Behavioral Studies in Education; and Northern Plains Indian Teacher Corps.

On the basis of Harvey's score profile the conceptual orientations of the 152 subjects were distributed as follows: approximately 51 per cent in System 1; 3 per cent in System 2; 34 per cent in System 3; 9 per cent in System 4; and 3 per cent admixtures.

Using the method of highest score on the REPI, the philosophical orientations of the 152 subjects yielded the following distribution: approximately 5 per cent Idealists; 3 per cent Realists; 36 per cent

Pragmatists; 44 per cent Existentialists; and 12 per cent with no defined philosophy.

Both the CST and the REPI were completed by the subjects during the spring semester of the 1970-71 school year. The statistical procedures utilized in the analyses of the data consisted of: one-way analysis of variance, chi-square test, Dunn's "c" test for making multiple comparisons among the means, zero-order correlation, and the Veldman method of canonical correlation. The .05 level was used for evaluating the significance of the results.

Findings

The findings of the present study are summarized below in the same order in which the research questions and hypothesis were presented:

1. There were significant differences among the programs on the following variables: age, sex, year in program, teaching experience, Divine Fate Control (DFC), Need for People (NFP), Interpersonal Aggression (IA), Anomie, Idealism, Realism, Pragmatism, and Existentialism.

2. There was a significant difference for year in program among the conceptual orientations of the subjects.

3. There were no significant differences for age, sex, year in program, and teaching experience among the philosophical orientations of the subjects.

4. There was a significant canonical relationship between the CST variable, Divine Fate Control, and the REPI variable, Idealism.

Conclusion

Concerning the variables of age, sex, and teaching experience, it was concluded that the New School program recruited and trained older,

experienced teachers. Also, the New School and Teacher Corps programs attracted more male teacher trainees. On the CST variables, College of Education and Teacher Corps trainees possessed a greater respect for authority; College of Education trainees compared to New School trainees were more influenced by the need to seek group approval for their actions and values; New School and Teacher Corps trainees tended toward interpersonal aggression and Teacher Corps trainees were most affected by impaired social norms. On the REPI variables, no meaningful interpretation could be placed on the higher scores of the Teacher Corps trainees.

In considering the conceptual orientations of the subjects, it was concluded that their conceptual development from junior to senior year was in accord with the Conceptual Systems Theory.

In considering the relationship between the subjects' conceptual and philosophical orientations, it was concluded that authoritarianism was the mediating link between the positively related Divine Fate Control and Idealism.

CHAPTER I

INTRODUCTION

Background

Teacher competence is considered to be closely related to the quality of educational programs; therefore, considerable attention has been focused on teacher education. The American Council on Education (ACE) conducted what might be termed the first comprehensive effort to analyze the impact of various approaches to teacher education (ACE, 1939). Their strategy encouraged selected and representative types of institutions to develop innovations in programs for investigational purposes. The scope of studies sponsored by the ACE ranged from a definition of the cultural and social elements in the education of teachers (Bigelow, 1940) to the use of evaluation in teacher education (Troyer and Pace, 1944).

In attacking the difficult problem of evaluating an entire teacher education program, the ACE (1944) set in motion a series of studies, work conferences, and reports aimed at projecting new conceptualizations for programs of teacher education. One technique employed was that of a jury of experts to judge existing theory and practice and to project the ideal, in regard to teacher education programs (Stiles, 1945). Another proposal for evaluating an entire teacher education program suggested identifying a basic set of segments or elements common to all teacher education programs and then

administering appropriate tests to the students in those segments of the teacher education program (Woodruff, 1963). The work of Tyler and Okumu (1965) attempted to develop a systems analysis of teacher education programs based on the identification of the behavioral objectives of existing courses and the comparison of these objectives with the stated goals and content of each course. Such research, while still in the developmental stages, may have considerable import for future efforts in professional course revision.

The underlying direction of the New York State Symposium on Evaluation in Education was toward evaluation of teacher education programs according to the teaching ability of their students and graduates (Burkhart, 1969). This would seem to be a reasonable alternative approach to the assessment of various teacher education programs, but it also incorporates some of the most complex research problems in education. One problem in evaluating the effectiveness of teacher training institutions by this method is the difficulty in defining, measuring, and evaluating teacher traits and teaching effectiveness (Henjum, 1969).

Studies of teachers' cognitive abilities as a predictor of teaching behavior have been consistently discouraging. College achievement has probably been the most commonly used criterion in predicting teaching success. Evidence as to the validity of grade-point averages in these studies is conspicuously absent or unconvincing (Reynolds, 1970). Partially because of the low validity of cognitive tests in predicting teacher behavior, researchers have utilized a number of non-intellectual measures such as teacher attitude scales, interest inventories, and personality measures. Reviews of research on teachers' characteristics and

on the measurement of prediction of teaching success (Biddle, 1964; Getzels and Jackson, 1963; Ryans, 1960; and Stinnett and Clarke, 1960) have noted investigators' concern with teachers' affective behavior. In such reviews, the Minnesota Teacher Attitude Inventory (MTAI) has been given special attention, probably because so many studies have employed it (Yee, 1967). Studies regarding the MTAI continue to appear in the literature, but whatever this instrument measures, researchers (Giebink, 1967; Tarpey, 1965; and Yee, 1967) seem to lack confidence in the MTAI as a predictor of teaching behavior.

A survey of the literature concerning the personality of teachers, reported by Getzels and Jackson (1963), thoroughly discussed the major quantitative and experimental investigations published between 1950 and 1962. Their review contained 175 separate entries. Some studies found significant relationships between measures of personality and teaching effectiveness, but Getzels and Jackson concluded with the discouraging observation that no conclusive results were apparent. One reason for the lack of consistent results has been attributed to the between - and within - subject variation and to the variety of measurement techniques employed (Allen, 1968; Bledsoe and Crafton, 1968; and Cook and others, 1963). A second reason may be that in many personality studies, investigators have failed to take into account such variables as age, sex, school level, and teaching experience (Linden and Linden, 1969). According to Getzels and Jackson (1963), the major limitation of earlier studies investigating teacher personality was that most were conducted in a "theoretical vacuum."

The successful application of theory to research may provide the most logical source of useful, relevant, and widely applicable findings.

It has been suggested that any teacher characteristic involved in a research study should be submitted to the following question: "On what grounds in learning theory or socio-psychological theory (or any body of theory) can we justify that this characteristic of teachers is related to a given effect?" (American Education Research Association, 1952, p. 255).

In this respect, the Conceptual Systems Theory (Harvey and others, 1961) seems appropriate since it is concerned, among other things, with coordinating concepts relating teacher personality and teaching behavior. There is empirical evidence, based on this theory, for example, that knowledge of a teacher trainee's conceptual orientation can be used to predict his initial teaching style (Hunt and Joyce, 1967; Joyce, 1964; Murphy and Brown, 1970). Another finding of this research was that different teaching styles can have differential effects. Which particular style of teaching is superior or more desirable probably depends on the characteristics of the learner and the educational objectives of the instructor.

For the most part, research relating to teacher education has been conducted within the tradition of psychology; less frequently has it been attempted from a theoretical framework within an explicit philosophical orientation (Brown, 1966). Yet, Scriven (1960) found that researchers and research designs in educational areas are consciously or unconsciously committed to philosophical value judgments. Also, Ellena and others (1961, p. 42) have noted that those who study teacher effectiveness, ". . . should be aware of, and state explicitly as evidence, the implicit value assumptions involved."

Woodring (1957) proposed that a large part of the professional preparation should be common to all teachers including a firm philosophical basis for the kind of educational decisions he will be called upon to make. In a survey of the reported fears of first-year teachers, Whitman (1966) found that beginning teachers had difficulty in understanding the school's philosophy. A school's philosophy, in turn, may largely determine its educational aims (Burns and Brauner, 1962). Scriven (1969) attempted to assess the degree of inconsistency in educational aims held by teachers and, on the basis of his findings, questioned whether schools can be expected to teach values when their professional staff are not in unanimity as to what those values are.

A philosophy of education might be characterized as an educational theory which should guide classroom practices (Morris, 1961; Thayer and Levit, 1966; and Wingo, 1965). Morse and others (1961) investigated the different philosophical approaches to classroom instructional design which appeared to be dictated by four different viewpoints of educational psychology. They found there was no significant relationship between the teachers' general classroom practices and what was called the teacher's philosophy. A more recent study by Brown (1966) has indicated a possible relationship between a teacher's classroom practices and measures of their agreement-disagreement with the philosophy of pragmatism.

Stufflebeam (1968) has suggested four strategies for evaluating educational programs: context, input, process, and product (CIPP). In the CIPP evaluation model, context refers to the conceptual and philosophical analyses of the programs and includes defining the operations, identifying and assessing the needs, and delineating the problems underlying the needs. Input refers to the analysis of the human and material

resources in order to provide feedback on defects in procedural design or its implementation. Process refers to monitoring the procedural activities for the purpose of furnishing information on strategies to be employed. Product refers to measuring the criteria and then comparing these measurements with predetermined standards in order to determine the effectiveness of the project.

In 1967, the United States Office of Education (USOE), issued a request for proposals which would develop educational specifications for a comprehensive undergraduate teacher education program for elementary teachers (Monson, 1969). The nine elementary teacher training models selected were then examined by a team of researchers from Stanford University (Shaftel, 1969). The Stanford research team attempted to identify the conceptual and philosophical considerations which might act as a guide in the context evaluation of the proposed models.

Another approach to this problem might utilize an input evaluation of those individuals who populate the programs rather than concentrate on the programs per se. Thus it would seem useful to gain some knowledge of the conceptual and philosophical orientations of the individuals in the three elementary education programs at the University of North Dakota (UND) in order to compare these programs. Of the three elementary programs at UND: the regular College of Education program is probably the most traditional; the New School of Behavioral Studies in Education program is perhaps the most experimental and innovative; and the Northern Plains Indian Teacher Corps program is possibly the most developmental, as it attempts to produce a better model for preparing teachers of disadvantaged children.

Purpose of the Study

The purpose of this study is: (1) to determine the conceptual and philosophical orientations of the teacher trainees enrolled in the three elementary teacher preparation programs at the University of North Dakota (UND) for the spring semester of the 1970-71 school year; (2) to determine whether or not any differences exist among the three groups of teacher trainees with respect to their conceptual and philosophical orientations; and (3) to determine the interrelationships between their conceptual and philosophical orientations.

With the implementation of the New School of Behavioral Studies in Education and the Northern Plains Indian Teacher Corps programs for training elementary teachers at the University of North Dakota (UND), the question of philosophical aims became an issue. For example, it seemed necessary to clarify the New School's uniqueness in relation to the regular on-going College of Education program. As Clark (1971, p. 3) has stated:

If, indeed, the New School represents an experimental program, a new organization of curriculum, a new kind of training activity as compared to the regular program of the College of Education, then it stands to reason that it should attract students whose philosophies are more pragmatic, perhaps even more existential, than students attracted into the College of Education.

After a period of three years the UND University Curriculum Committee (1971, p. 6) found that "The New School has not clearly demonstrated through research designs that the educational philosophy and methodology they espouse has had a significant impact upon students, when compared to traditional methods."

Need for the Study

The recent sharp decrease in the number of children entering public school might reasonably be related to a similar decrease in the number of students entering teacher training programs. Because of the present economic situation, as it applies to the public schools, and the present so-called over-supply of teachers (over-supply in the sense that qualified job applicants cannot find employment), the need for graduates who are qualified teachers is decreasing in terms of numbers. Based on past experience, State funds allocated for teacher education could easily decline as the projected decrease in enrollment occurs. Nor would it seem reasonable to rely upon federal funds for continuing financial support of teacher education on the UND campus. Partly for this reason, a proposal has been made to bring together the New School of Behavioral Studies in Education, the College of Education, and the College of Arts and Science into a Center for Teaching and Learning at the University of North Dakota. Whatever the details are in regard to this union, it is highly unlikely that the University of North Dakota would be able to receive financial support from the State for more than one faculty to train elementary school teachers. In this event, the present study may be of help in evaluating the three elementary teacher training programs, but perhaps a more important use might be in the planning of a new elementary teacher preparation curriculum.

Research Questions

The main questions that this study has endeavored to answer are:

1. What are the relationships among the three teacher training programs of the elementary majors and their age, sex,

- year in program, teaching experience, conceptual orientation, and philosophical orientation?
2. What are the relationships among the conceptual orientations of the elementary majors and their age, sex, year in program, and teaching experience?
 3. What are the relationships among the philosophical orientations of the elementary majors and their age, sex, year in program, and teaching experience?

Research Hypothesis

The following has been hypothesized because of the predicted direction of the relationships between the two sets of variables:

There are no significant relationships between the conceptual and philosophical orientations of the elementary majors.

Delimitations

The proposed study was conducted within the framework of the following delimitations:

1. This study was limited to juniors and seniors enrolled in the elementary teacher training programs of the College of Education, New School of Behavioral Studies in Education, and the Northern Plains Indian Teacher Corps at the University of North Dakota during the spring semester of the 1970-71 school year.
2. All of those students in the College of Education and Teacher Corps programs, and a random sample of those

students in the New School program, were asked to participate in the present study.

3. Only those students who completed both the Conceptual Systems Test (CST) and the Ross Educational Philosophical Inventory (REPI) were included in this study.

Limitations

The limitations of the problem under investigation were as follows:

1. It was assumed that the subjects were forthright in completing the two inventories and the information sheet employed in this study.
2. The reliability and validity of this study was limited by the reliability and validity of the CST as a measure of conceptual orientation, and the REPI as a measure of philosophical orientation.
3. The accuracy of the biographical data obtained from the records of the Department of Education, New School of Behavioral Studies in Education, and Northern Plains Indian Teacher Corps on the participating students was assumed to be substantially correct.

Significance of the Study

If the conceptual and philosophical orientations of the subjects in the present investigation are not significantly different, this would suggest that some of the differences that might be hypothesized in the affective domain, among the three groups of teacher trainees, do not manifest themselves in this study. On the other hand, if the conceptual

and philosophical orientations of the subjects do differ significantly, it would be worthwhile to document these differences. These differences, in turn, may affect selection practices, as well as retention criteria, but perhaps more important, recognition of these differences might be utilized in the development of a coordinated, elementary teacher preparation curriculum at the University of North Dakota.

There have been no reported studies on the relationship between the two sets of variables measuring conceptual and philosophical orientation. If there is no relationship, then the two instruments that were used are apparently measuring different things. But if there is a significant relationship, it would be worthwhile to know in what ways the two sets of variables are related.

Definitions of Terms

1. Conceptual Systems Theory.--According to this theory, the major dimension in personality variation is the degree of abstractness. By the process of differentiation-integration, concepts attain some stage or level on the continuous dimension of concreteness-abstractness. Greater abstractness is associated with the characteristics of creativity, flexibility, stress tolerance, and adaptability.

2. Conceptual (Belief) System.--A Conceptual System is one of four basically different sets of belief which is unique to a person in his potential development along a concrete-abstract continuum.

3. Conceptual Systems Test (CST).--Harvey's CST is an attempt to measure a subject's Conceptual System in a quantitative way on the basis of the factor scores derived from 67 statements of belief. The respondent indicates the strength of his agreement or disagreement to each statement on a six-point scale.

4. Admixtures.--This is the designation of subjects who cannot be classified, through Harvey's CST, as fitting into one of four Conceptual Systems, but rather, are at one of the levels in between the four major stages (Conceptual Systems).

5. Conceptual Orientation.--This is the score profile of the subject as obtained from the CST factors; or the classification of the subject as determined by the subject's CST score profile. It is described in greater detail in Chapter III.

6. Divine Fate Control (DFC).--This CST factor indicates the degree of dependence of the subject on such extra-personal referents as God and religious authority. The factor is assessed by such items in the CST as "There are some things which God will never permit man to know," "I believe that to attain my goals it is only necessary for me to live as God would have me live," and "No man can be fully successful in life without belief or faith in divine guidance."

7. Need for Structure-Order (NS-0).--This CST factor indicates possible traits in the subject such as overconscientiousness, meticulousness, perfectionism, and rigidity in every-day habits. The factor is inferred from responses to such statements in the CST as "Any written work that I do I like to have precise, neat, and well organized," "I like to have a place for everything and everything in its place," and "I find that a well organized mode of life with regular hours is suitable to my personality."

8. Need to Help People (NHP).--This CST factor indicates the subject's drive to be liked and to establish mutual dependencies. The factor is derived from such items in the CST as "I like to help my friends when they are in trouble," "Contributing to human welfare is

the most satisfying human endeavor," and "I enjoy making sacrifices for the sake of the happiness of others."

9. Need for People (NFP).--This CST factor indicates the degree of importance a subject places on the existence and approval of others in order to achieve interpersonal and group acceptance. The factor is revealed by answers to such items in the CST as "I like to join clubs or social groups," "I enjoy being a part of a group," and "I like to meet new people."

10. Interpersonal Aggression (IA).--This CST factor indicates the extent of a subject's aggressive orientation and hostility, that is directed toward freedom from controlling forces. The factor is measured by responses to such statements in the CST as "I feel like telling other people off when I disagree with them," "I feel like getting revenge when someone has insulted me," and "I like to criticize people who are in a position of authority."

11. Anomie (AN).--This CST factor indicates the extent of a subject's "social disorganization" and the psychological consequences such as: alienation, aloneness, and insecurity. The factor is assessed by such items in the CST as "These days a person doesn't really know whom he can count on," "Anyone who completely trusts anyone else is asking for trouble," and "Politicians have to bribe people."

12. System 1.--At the lowest level of conceptual complexity, the rules or schemata for categorizing stimuli are highly fixed and simple. Ambiguity is not tolerated and simple schemata, norms, or authorities help the individual to structure his environment in a complete and unyielding way. System 1 individuals are characterized by categorical,

black-white thinking, minimization of conflict and avoidance of ambiguity, self definition in terms of external anchors, preservation of standards and minimization of alternatives, and over-generalization of fixed approaches or stereotypes.

13. System 2.--At a level of conceptual complexity somewhat above that of System 1, the schemata for categorizing stimuli are still relatively simple, but more alternatives are perceived than in the case of System 1 functioning. The System 2 individual perceives his world against a background of self vs. other (representing the separation of self and other which is beyond the conceptual complexity of System 1), and accepts self while rejecting other. This leads to an absolutistic orientation toward others who, when seen in a position of potential control, are avoided; he experiences conflict when external standards are imposed on the self. This detached, anti-dependency characterization has been termed a negatively independent orientation.

14. System 3.--At this higher level of conceptual complexity the schemata for perceiving the environment are more flexible and more alternatives are perceived. Not only is the self highly differentiated, but other people are equally differentiated. This latter fact enables the System 3 to be highly sensitive to others and to attempt to match his perceptions to those of others. That is, he is highly capable of putting himself in the role of others and perceiving himself as others perceive him. The orientation, then, is toward the maintenance of close interpersonal relationships and rejection is threatening.

15. System 4.--At the highest level of conceptual complexity a diverse world filled with many alternatives is perceived. The System 4 individual uses highly complex and flexible schemata for

perceiving his environment and those in it. Interpersonally, this individual is highly autonomous and reacts to people as a source of information. The System 4 person generates a large variety of alternative interpretations of environmental events and can thus react to the subtleties of his environment with appropriate and novel responses.

16. Ross Educational Philosophical Inventory (REPI).--The REPI attempts to measure the subject's educational philosophy on the basis of his responses to twenty statements on each of four major systems of philosophy: Idealism; Realism; Pragmatism; and Existentialism.

17. Philosophical Orientation.--This is the score profile of the subject as obtained from the four REPI scales; or the classification of the subject as determined by their highest score on the REPI. It is described in greater detail in Chapter III.

18. Idealism.--The distinguishing feature of idealism is that ideas are considered to exist as the essence of things and these ideas are eternal and unchanging. The divine mind, according to religious Idealists, gives order to the universe and an affinity exists between the divine mind and the spiritual essence of one's being. In education, Idealists do not seem to subscribe to any particular theory of learning or method of teaching. But they do consider the aims or objectives of education to be of paramount importance. Idealists hold that the purpose of education is to guide the individual by transmitting to him the highest moral and intellectual values.

19. Realism.--The basis of realism is a belief in the reality of matter. Objects of knowledge are said to exist independently of the knower and the test of truth is its correspondence to reality. One form of realism, following the scientific tradition, states the universe is

governed by an inexorable law. Aspects of materialism, authoritarianism, and mechanism have been attributed to this viewpoint. The educational theory of scientific Realism may involve a commitment to: a central core of subject matter; a stimulus-response type of learning; and an emphasis upon tests based on instructional objectives.

20. Pragmatism.--The principal themes of this philosophy include: the reality of change over permanence; the relativity of truth and values; the importance of democracy as a way of life; and the need for critical intelligence in all human conduct. Some of the educational implications of Pragmatism are: the aims and objectives of education must be flexible and open to revision; truth and values are determined by responsible investigation and shared experience; emphasis is placed on "learning by doing" which may be interpreted as the "project method" and the "activity curriculum"; and the school should serve as a model democracy permitting "intelligence" the freedom of thought and action that it, ideally, requires.

21. Existentialism.--Modern existentialism attempts to develop an educational outlook based on the value of the individual person. A fundamental Sartrean principle is that "existence precedes essence," which means that man exists first and is "nothing" until he acts. But because man is free, when he does act, he brings values into being for which he must accept full responsibility. Existentially-oriented education is considered to be the "self-discovery of responsibility," and the teacher's role is to act as a facilitator in the student's search for self-realization and self-fulfillment.

CHAPTER II

REVIEW OF THE LITERATURE

Research efforts regarding innovation and program implementation in the field of teacher education have met with only limited success. Part of the difficulty may be due to the inability of educators to define precisely many of the things they want measured. In teacher education, it is usually assumed that the training program has as its primary purpose the preparation of "good" teachers. The pattern of research based on this assumption has been to evaluate teachers by establishing some criteria for "good" teaching. Ryans' (1960) ten-year study was an example of the trend to establish criteria, but the instruments he developed to differentiate successful and unsuccessful teachers yielded inconclusive results. Concurrent validity coefficients for the data collected by Ryans have typically ranged from .20 to .50 and predictive validity coefficients have seldom exceeded .20.

Possibly many of the concepts in teacher education are not amenable to precise definition. But reasonably valid measures (operationally defined) of these concepts may become available as more or less widely acceptable constructs are developed. The problem of acceptable constructs is exemplified in the completed research of over one thousand teacher effectiveness studies which have not significantly altered the position, of many researchers, that effectiveness is somehow related to personality (Biddle and Ellena, 1964).

There are indications that the teacher's dominant personality has been formed prior to having acquired some teaching experience (Heddendorf, 1971). Partly for this reason any theoretical framework for teacher education should probably take into consideration specific dimensions of personality as well as the philosophical beliefs that student teachers bring with them to the profession. Research findings based on an experimentally testable theoretical framework may provide the most effective means of evaluating teacher training programs.

Teacher Training at the University of North Dakota

Teacher training at the University of North Dakota had its earliest beginning in 1882 when a meeting of the territorial leaders decided to support one university in each section of the Dakota Territory (Geiger, 1958). Geiger suggests an important factor in the successful passage of the University bill in 1883, establishing the University of North Dakota, was the provision of a normal department. This move apparently was intended to offset an expected proliferation of normal schools in the Dakota Territory. Besides the normal department, which later became the College of Education, the other founding unit of the University was the College of Arts and Letters.

Probably the lack of a formal school system in the Dakotas provided the strongest argument for the founding of liberal arts colleges and normal schools; the former to train secondary, and the latter to train elementary teachers. The original purpose of the normal department was (Geiger, 1958, p. 22) ". . . to provide instruction and learning in the theory and art of teaching, and in all the various branches and subjects needful to qualify for teaching in the common school . . ." Ostensibly to fulfill this purpose, an elementary

education program was introduced in 1886 which consisted of two years of high school and two years of college. Successful candidates of the program were awarded a Diploma in Teaching.

The four-year curriculum leading to the degree of Bachelor of Science in Education and Bachelor's Diploma in Teaching was implemented in 1958 by the Division of Elementary Education, in the Department of Education, one of several departments in the College of Education. Students were admitted to the regular teacher preparation curriculum at the beginning of the sophomore year, or, in the case of transfer students, at the junior or senior level. The objectives that characterized the professional preparation of teachers in the College of Education included the following (Undergraduate Catalog, 1970-1972): education is essential to the maintenance and development of the American way of life; the purpose of general education is, among other things, the development of ethical character; professional education should emphasize the achievement of behavioral objectives; and the program must provide the future teacher with the necessary knowledge, skills and attitudes to be a diagnostic teacher, that is, one who is capable of diagnosing individual needs.

The general pattern of preparation of elementary education majors was relatively structured, requiring a minimum of 90 semester hours in academic foundations (Arts and Science courses) and at least 32 semester hours in professional foundations (Education courses). Seventy semester hours of the academic foundations requirement were in certain specified courses or areas and included the 48 to 51 semester hours of general education courses required of all teacher education curricula in the College of Education. An undergraduate one-year curriculum was offered to

students who held a non-teaching degree so that they could qualify for an elementary school teaching certificate. In-service teachers with less than a degree were advised to complete degree requirements in anticipation of the raising of standards for teaching in the elementary schools (Undergraduate Catalog, 1970-1972).

A Statewide Study of Education was begun in 1965, acting upon a recommendation of the Legislative Research Committee of the North Dakota State Legislature that a comprehensive examination of the educational problems of North Dakota be initiated. The study was completed in 1968, and dealt with all phases of elementary and secondary education, as well as teacher education. The final report was published in six volumes as a Plan for Educational Development for North Dakota, 1967-1975 and is commonly known as the Alm Report, Alm being its chief investigator. Because of their relevance to the present study, only three volumes of the Alm Report are discussed here. The three volumes are: Educational Development for North Dakota, 1967-1975: Overview (Alm and others, 1967a); Personnel Needs in North Dakota Public Schools (Alm and others, 1967b); and Developing and Placing Educational Personnel in North Dakota (Alm and others, 1967c).

Educational Development for North Dakota, 1967-1975: Overview (Alm and others, 1967a) noted that the State ranked fiftieth in the matter of the professional development of its elementary school teachers, as only approximately 41 per cent of these elementary teachers were considered adequately prepared, in that they held a college degree. About 40 per cent of the University of North Dakota's graduates in education left the State, while nearly 90 per cent of those remaining were employed by one of the urban school districts. North Dakota also ranked fiftieth

in overall opportunity for elementary education. Cited as evidence for the ranking was the low enrollment of children in kindergarten.

A list of recommendations to be considered for adoption by the University of North Dakota contained the following suggestions: develop and initiate a new experimental graduate elementary teacher education program; create an autonomous new school of behavioral sciences within the University to develop and conduct the experimental program; and undertake formal working agreements with cooperating school districts.

Personnel Needs in North Dakota Public Schools (Alm and others, 1967b) reported that the average salary of North Dakota teachers in 1965 ranked forty-third among the states, being approximately 1500 dollars below the national average. Also, an estimated 1404 teachers, nearly 20 per cent of the teachers employed in North Dakota at the end of the 1964-65 school year, did not teach in the State during the 1965-66 school year. Teachers under 30 years of age made up nearly 50 per cent of the attrition which seemed to support the implication that newly qualified teachers were not being adequately prepared for effective teaching and for being able to derive optimum satisfaction in the rural schools of North Dakota.

Developing and Placing Educational Personnel in North Dakota (Alm and others, 1967c) emphasized that the immediate task was the preparation of some 1950 qualified elementary school teachers to replace those in the classrooms which were then staffed by "under-prepared" teachers.

Several alternatives were considered as possible solutions to the above problem. One alternative was an intensive in-service program that would seek to qualify presently "underprepared" teachers by on-the-

job training. This approach was rejected because allegedly it had never been demonstrated to be an effective or efficient means of qualifying "seriously underprepared" teachers.

Another alternative considered expanding already existing elementary teacher preparation programs, but this too was rejected for three basic reasons. First, most teacher graduates either leave the State or take up a position in one of the State's large school districts. Second, the typical graduate in education is unequipped either by training or experience to handle the problems confronting him or her in the small rural schools. Third, while the future teachers' attitudes, skills, and understandings may be adaptable to needed change, the existing structure within and outside the University was not conducive to implementing the amount of change required by the new program.

The proposed teacher education program was broadly outlined as encompassing the following: an experimental five-year preparation program for elementary teachers; the initial two years of study in the liberal arts; the third (junior) year, a first year of professional training, comprised of behavioral science content; the fourth (senior) year, one of carefully supervised practicums in the diagnostic and prescriptive procedures of clinical methodology; and a fifth year spent in full-time residence in a cooperating school and culminating in a master's degree. The instructional teams of newly prepared and qualified teachers would replace an equal number of interested non-degree teachers from those cooperating school districts and the latter would be enrolled as degree candidates in the experimental teacher preparation program. Interspersed throughout the program, as appropriate, would be the formal and clinical study of urban, rural, and less intensively, world affairs (Alm and others, 1967c).

Cushman (1968), Dean of the College of Education at the University of North Dakota, accepted an invitation in Developing and Placing Educational Personnel in North Dakota (Alm and others, 1967c, p. 5) which requested " . . . a serious and systematic review of the proposed plan . . ." for educational reform in the State. Although, in 1968, only approximately 41 per cent of the elementary teachers in the State had a bachelor's degree, Cushman reported this was significantly greater than the 10 per cent similarly qualified in 1960.

Replying to the supposed inability of the regularly prepared elementary teachers to cope with their responsibilities in a rural setting, Cushman claimed a lack of evidence to support this allegation. The scarcity of qualified elementary teachers in the rural schools, he suggested, may be due more to the unattractive "setting" rather than the "pattern of preparation," but he did recognize, at the same time, that improvements may be necessary in the "pattern."

Evidence, from a number of sources, was noted by Cushman in support of the quality of the regular elementary teacher education program. The first source of evidence cited was the University's Teacher Placement Office where there were thirty-two times as many requests for elementary teachers as there were candidates. Second, the doctoral dissertation of Alm (1963), the chief investigator of the Statewide Study, indicated that graduates of the University of North Dakota elementary program were competent to teach in some of the best school systems of the country. Third, a number of studies (Frank, 1959; Homuth, 1956; Iverson, 1957; Klein, 1962; Sholy, 1958) have suggested the key to the elementary teachers program was one of getting an adequate teaching station that would be attractive to the typical degree graduate. These studies also stressed

the need for improvement of the total setting: salary; working conditions; classrooms; audiovisual aids; supervisor assistance; team teaching possibilities; and sympathetic administrators. All of these factors were considered necessary in order to attract and retain the degree holding teachers.

Cushman concluded that even if one accepts the argument that there is a need for a five-year program, for the preparation of elementary teachers, then it should be possible to implement such a program within the regular teacher education structure since the College of Education has had considerable precedent for experimentation and innovation. But he was of the opinion that something more than clinical experience at the fifth year level of teacher training would be needed to qualify for a master's degree in any accredited graduate school.

According to Koenker (personal interview), the Vice President of Academic Affairs at the University of North Dakota, the United States Office of Education (USOE) would not allocate federal funds to initiate the New School program unless the New School was set up as an autonomous unit within the University of North Dakota. Apparently the USOE was given this assurance as the State Board of Higher Education authorized, in early 1968, the establishment of the federally supported New School of Behavioral Studies in Education.

An important objective of the Alm Report was to fill every elementary teaching position in North Dakota with a degree teacher by 1975. A recent study of the New School (University Curriculum Committee, 1971) inquired into this objective and found not only a lack of statistics regarding progress being made toward meeting this objective, but also

considerable questioning by New School faculty on the rationale of such an objective.

There have been a number of New School doctoral dissertations and master's studies dealing specifically with the behavior of pupils taught by New School graduates. Graham and Sanderson (1970), Schmiess (1970), and Semmens (1970) found some significant differences in the pupils' interest in science favoring children in New School classrooms.

Semmens (1970) and Greff (1970) collected data pertaining to interest in and enjoyment of school, parental attitudes about their children's classrooms, and school attendance which favored New School classrooms at statistically significant levels. Nielson (1970) studied the attitudes of a sample group of parents from Madison School in Fargo, a cooperating school in the New School program. Nielson reported 76 per cent of the parents felt that their children enjoyed school more than the previous year when no New School program was in effect. The study also showed that 73 per cent of the parents felt that their children were making better progress in school than during the previous year. Abbott (1972), in a survey of Kelly School in Grand Forks, found that 80 per cent of the students enrolled in the New School classrooms were committed to independent reading while only 50 per cent of the students enrolled in regular classrooms were similarly committed.

The findings from a study of the pupils in a rural school district of North Dakota are shown in Table 1 (Thompson, 1970). The results reported in Table 1, using the Iowa Tests of Basic Skills subtest on use of sources, indicated there was no difference in the percentile rankings of high achievers with New School and regular

teachers. However, the average and low achievers of New School teachers attained higher percentile rankings than the average and low achievers of regular teachers.

TABLE 1

IOWA TESTS OF BASIC SKILLS SUBTEST ON USE OF SOURCES OF LAKOTA NORTH DAKOTA ELEMENTARY SCHOOL PUPILS

Teacher Program	Number of Pupils	Percentile Rankings of Achievers		
		High	Average	Low
New School	350	91	59	19
Regular	350	91	49	9

A comparison of the "input characteristics" of most New School and College of Education juniors as of May 25, 1970, was provided by Koenker and are found in Table 2 (University Curriculum Committee, 1971). The results reported in Table 2 indicated that the differences in the Grade Point Averages (GPA) and the American College Test (ACT) Composite scores of the New School and regular students, were negligible, indicating that, in regard to the variables tested, there were no differences between the New School and College of Education juniors.

TABLE 2

GPA AND ACT COMPOSITE SCORES OF JUNIORS IN THE NEW SCHOOL AND COLLEGE OF EDUCATION ELEMENTARY PROGRAMS

Teacher Program	Number of Students	GPA	ACT Composite	
			Number of Students	Score
New School	69	2.69	36	22.1
Regular	114	2.67	88	21.6

The New School program was designed to prepare "degree" teachers for the elementary schools in the rural communities of North Dakota. Some of these rural schools have substantial enrollments of Indian children coming from low-income families. Apparently in response to their needs, a new elementary teacher education program, the Northern Plains Indian Teacher Corps, was established in the College of Education at the University of North Dakota (Lemon and others, 1969). One of the major objectives of the Northern Plains Indian Teacher Corps was the preparation of better qualified candidates, especially qualified Indians, to be teachers of Indian youth. Selected as its major focus was the improvement of instruction in the area of reading. This focus was attributed to (Lemon and others, 1970, p. 11) the following considerations:

"Indian children have been the subject of research that identified high rates of reading disability and poor standard English usage background" and "Anticipated deficiencies in the area of reading and language abilities among Teacher Corps interns."

The Teacher Corps was created by the Higher Education Act of 1965 and later revised in the Education Professions Development Act of 1969. The rationale underlying the bill was to strengthen the educational opportunities available to children in areas having concentrations of low-income families, and to encourage colleges and universities to broaden their programs of teacher preparation. To achieve this purpose the Teacher Corps recruited and trained college graduates and upperclassmen to be teachers in schools serving children from low-income families. Since the Teacher Corps was never intended to be a sustaining program, emphasis has been placed on educational reforms in teacher education which could continue to operate with the support of local or less categorical Federal funds (Graham, 1969).

In an effort to improve on the traditional teacher preparation programs, the Northern Plains Indian Teacher Corps adopted the general Teacher Corps model for undergraduates who have completed two years of college (Teacher Corps Guidelines, 1969). This model includes a pre-service summer session, followed by an in-service winter session where the Teacher Corps interns (student teachers) work three days a week in the local schools, one day a week in community work, and one day a week at University course work. This is followed by a second summer and in-service winter session leading to a baccalaureate degree and teacher certification. As the New School employs the clinical experience model which is unlike the competency-based Teacher Corps model, it has been suggested that several comparisons might be made of the total programs (Lemon and others, 1969).

In appraising their program, Graham (1968, p. 107), the Director of Teacher Corps, observed that "One thing we do know is that we are doing a very poor job of telling Teacher Corps candidates what they are getting into. . . ." A national survey of Teacher Corps interns (Arth and Wagoner, 1969) found that regardless of the regions in which they were trained, criticisms of the Teacher Corps training programs were markedly similar. The interns seemed concerned that their classes differed little, if at all, from the regular education classes; were "bitter and vehement" in their comments on the "methods" courses; wanted specific techniques for handling the multifarious problems which they faced daily in their intern work; and felt that their "non-conformist ideas and unorthodox approaches" were being undermined by local educational authorities and team leaders who were selected by these same authorities.

The Northern Plains Indian Teacher Corps offers qualified Indians, with poverty experience, preference over other applicants for both internships and team leader positions (Lemon and others, 1970). A similar pattern of recruitment and placement seems to have been followed by other Teacher Corps programs. For this reason a study was designed to test the relationship between previous personal experience with poverty and performance in the pre-service phase of the Teacher Corps (Lawrence and Long, 1969). The researchers reported the resultant data of the study provided no empirically tested bases to support this preferential treatment.

Conceptual Orientation

The research of Hunt and Joyce (1967) and Murphy and Brown (1970) indicated a relationship between the conceptual orientation of teacher trainees and their initial teaching style. Conceptual orientation, as defined in Chapter I, has been deduced from the Conceptual Systems Theory of Harvey and others (1961). According to this theory:

. . . an individual reacts to his environment by breaking it down and organizing it into meaningful patterns congruent with his own needs and psychological make-up. As a result of this interchange, perceptual and behavioral constancies develop which stem from the individual's standardized evaluative predilections toward differentiated aspects of his eternal world (Harvey and others, 1961, p. 1).

These tendencies are referred to as concepts. Differentiation refers to the breaking of a novel situation into more clearly defined and articulated parts. Integration is the relating of such parts to each other and to previous conceptual standards. In the most general sense, a concept is a scheme for evaluating external stimuli and the impact of situational and dispositional factors. Since concepts serve as a mediating link between an individual and his environment; they have

an adaptive function. They also have a motivation function if they lead to action.

In the progressive development of concepts, differentiation and integration does not occur at a steady linear rate. Instead the process seems to move saccadically, that is, in a series of extremely rapid jerks. Out of the saccadic process of differentiation-integration, concepts evolve so that structural variations occur in the dimensions of the consequent organization. The two basic aspects of the evolved concepts are content, which includes such referents as God, oneself, or any other object of direct or indirect experience; and structure which is how a person organizes his concepts. Of the two, structure is emphasized in the Conceptual Systems Theory because (Harvey and others, 1961, p. 3) "The functional nature of a concept is assumed to be interdependently related to the structural characteristics . . ." rather than the object-referents. A Conceptual System represents a structure of concepts which operate together producing characteristic conceptual functioning. The most important structural characteristic, at least of Conceptual Systems, is the degree of concreteness-abstractness. Concreteness-abstractness refers to how an individual articulates and organizes his concepts. The more concrete end of the continuum represents the state of minimal differentiation and integration of the relevant situation, while the more abstract end of the continuum represents the state of maximal differentiation and integration.

Some of the specific structural properties which underlie the dimension of concreteness-abstractness are: clarity-ambiguity; compartmentalization-interrelatedness; openness-closedness; and centrality-peripherality (Harvey and others, 1961).

Clarity-ambiguity refers to the degree of differentiation of the concept which has evolved. The more differentiated the concept, the greater is its clarity; the less differentiated the concept, the greater is its ambiguity. Low clarity generally discloses greater concreteness.

Compartmentalization-interrelatedness refers to the degree to which concepts are interconnected following the differentiation. Concepts may be differentiated but remain partly or wholly unintegrated. Differentiation without integration is less concrete than lack of differentiation, but is less abstract than differentiation with integration.

Openness-closedness refers to the degree of receptivity of the system to external impingements. The more abstractly functioning individual is capable of entertaining more alternatives (is more open) than is the more concretely functioning individual.

Centrality-peripherality refers to the degree of dependence of other concepts or parts of a system upon a given one. An optimal degree of centrality for abstract functioning occurs when all parts contribute to the functioning, but none too heavily so. The place of a concept on the centrality-peripherality dimension determines its position in what some might call a "hierarchy of values."

Although the content and structure of concepts are theoretically independent, a high relationship is assumed to exist between an individual's level of abstractness and the content of his more central concepts. This relationship only holds for the higher levels of involvement or centrality (Harvey, 1967). From the interaction between content and structure, several patterns have been deduced in which the tendency to make certain objects central is accompanied by a particular level of concreteness-abstractness.

In the work of Harvey and others (1961), four basically different stages of concreteness-abstractness are treated as major conceptual systems. The first three basic stages represent "arrested" conceptual functioning, of varying time and duration, on the concrete-abstract continuum. These major systems may be viewed (Harvey and Schroder, 1963, p. 118) ". . . as approaches to fate-control, the means which an individual under circumscribed conditions develops and comes to employ, to gain rewards in the best way he can in that situation."

System 1 functioning represents the most concrete mode of relating to and construing the world. Consequently it manifests itself in such characteristics as: high religiosity; high absolutism and closedness of beliefs; high superstition; high evaluativeness; high positive ties with and dependence on representatives of institutional authority, especially those of nearly unimpeachable validity, such as God and religion; high identification with social roles and status positions; high conventionality; and high ethnocentrism. System 1 functioning is also highly related (Harvey, 1966, p. 45) ". . . to the syndrome of authoritarianism with System 1 individuals scoring the highest of the four systems on the F scale." Harvey's reference to the F scale is the widely used scale developed by Adorno and others (1950) to measure authoritarianism.

Teachers characterized as System 1 tend to create simple, unambiguous, highly structured classroom environments. These teachers see themselves, other status persons, or the text-book, as authority sources. Students are rewarded who are able to recall facts as given by some authoritative source. Deviations from established procedures are punished in the name of morality, and searching behavior by pupils

is discouraged. Teachers functioning at this level will tend to deliver information to pupils, ask narrow questions permitting only one answer, and prevent the search for multiple and realistic criteria (Murphy, 1969).

System 2 functioning is only slightly less dogmatic, evaluative, and inflexible than that of System 1. Individuals belonging to System 2 are conceptually more complex than System 1 individuals but tend to have strong negative attitudes towards institutions, traditions, and social referents toward which System 1 persons are strongly positive. The representatives of System 2 are the lowest of the four groups in self-esteem and the highest in alienation and cynicism, wanting and needing to trust and rely upon authority and other persons, but fearing to do so because of potential loss of control and exploitation. In effect, System 2 functioning produces deep feelings of uncertainty, distrust of authority, and rejection of the more socially approved guidelines to action, while at the same time, other stable referents are lacking.

Teachers characterized by System 2 may use criteria for judging adequacy of pupil response that are often inconsistent and impulsive, and are inconsistently imposed. They often make overly high demands in their expectations of pupils and in the process may reject them. They avoid commitment to, control by, and dependence upon others. They seek to dominate their pupils, are self-centered, and are intolerant of ambiguity. Teachers functioning at this level will tend to deliver information to pupils, ask narrow questions, reward erratically and unpredictably, and show a non-conformity to rules (Murphy, 1969).

System 3 functioning is next to the highest level of abstractness posited by Harvey and others (1961). System 3 representatives, more than the representatives of any other system (Harvey, 1967) place strong

outward emphasis upon establishing friendships, intra-group harmony, and dependence relations. This helps to avert the feeling of helplessness and social isolation that would result from being forced to be on their own. The System 3 representative attempts to have persons of low status and low power dependent upon him. Those on whom the Systems 3 person would be dependent are individuals of high status, power, and expertise. The apparent need of the System 3 individual to control others through dependency relations tends to be guised under the desire and need to help others.

Teachers functioning at the System 3 level have high affiliative needs and are very susceptible to group influences. Their thinking would be less categorical, freer to entertain multiple alternatives, and display a greater willingness to compromise judgments than that of teachers in Systems 1 and 2. Nor will they deliver as much information and ask as many narrow questions as teachers of Systems 1 and 2. System 3 teachers reward searching by pupils and make more general supportive statements in the classroom. While demanding less obedience to the rules, they will sanction pupil relations with others more than teachers functioning at other conceptual levels. Because of the high value placed on social relationships, greater emphasis is placed on teaching group and social skills rather than task or performance skills (Murphy, 1969).

System 4 functioning is characterized by an information or task orientation to situations, and is the most abstract level of functioning described here. It ". . . manifests itself in information seeking, pragmatism, a problem-solving orientation, and a higher ability to change set, withstand stress, and behave creatively" (Harvey, 1970, p. 12). System 4 individuals like complex and reflective thought, seek out

diversity, and are tolerant of ambiguity. Their concepts are clear, articulated, and integrated. Their values are internalized, relative, consistent and organized. Representatives of this system are neither pro-rule, like System 1 persons, nor anti-rule, like System 2 individuals. Unlike System 3 representatives they do not lean heavily on dependence relations.

Teachers functioning at the System 4 level regard knowledge as tentative rather than absolute; they have a high respect for doubt and an openness to experience; and they can consider situations from the child's point of view. Classroom rules are derived from their own reasoning and direct experience instead of from omnipotently and arbitrarily imposed social norms. Pupils are encouraged to test, relate, and reflect upon their own ideas and to hypothesize, synthesize, and conjecture about their problems. Questions are asked to aid in the search for understanding and relationships rather than for precise correct answers. The seeking of solutions to problems is encouraged and rewarded (Murphy, 1969).

Conceptual Orientation and Educational Research

The continuing debate over psychological models of behavior (Ausubel, 1961; Sarbin, 1967; Shaw, 1971) and the significance of Conceptual Systems Theory in the selection of trainees for many professional programs points up the need for information on the extent to which individuals, relatively, use certain conceptual models. For example, with reference to teacher-trainees, Capelluzzo and Brine (1969, p. 10) concluded from their study of attitudinal characteristics that ". . . individuals come to teacher preparation and subsequently go into teaching practice with attitudinal sets and belief systems that do not apparently change over the years."

The potential educational relevance of the Conceptual Systems Theory seems to have suggested the hypothesis that a direct relationship exists between the conceptual structure of the teacher trainee and the occurrence of the reflective teaching style. The theoretically relevant teaching style, considered to be reflective, utilizes the learner's frame of reference to encourage questioning and theorizing (Hunt, 1964). A series of research studies (Joyce, 1964; Hunt and Joyce, 1967; Murphy and Brown, 1970) seemed to offer evidence in support of the hypothesized relationship between the conceptual structure of student teachers and their initial teaching style. Several of the studies (Joyce, 1964; Hunt and Joyce, 1967) identified an individual's conceptual structure in terms of his conceptual level (CL). CL was originally derived from the Conceptual Systems viewpoint which hypothesized that under ideal training conditions a person develops from a level in which he is cognitively simple (low CL) to one (high CL) in which he is cognitively more complex (Schroder and Streufert, 1962).

How the students' CL effects the teaching method used by teachers, also varying in CL, was investigated by Rathbone (1970). The teacher effects reported seemed to replicate the results of previous studies (Joyce, 1964; Hunt and Joyce, 1967; Murphy and Brown, 1970) which found high CL teacher trainees were more likely to adopt a reflective teaching style than low CL trainees. More pertinent to the present topic, student CL was found to be an equally important influence in determining the proportion of reflective teaching. Rathbone (1970) also noted that low CL teachers modulated to student CL as much as did high CL teachers.

Several studies (McLachlan, 1969; Tomlinson, 1969; and Tuckman, 1968) have indicated that the structure of the teacher's presentation

should be modulated to the learner's conceptual complexity or CL. The higher the learner's CL, the more likely he is to be accessible through a more complex presentation. Bundy (1968) found in training educational administrators to make more effective decisions, that high CL administrators were adversely affected by a structured guide, while those lower in CL tended to profit from a structured guide. Heck (1968) found, in training to increase communication skill, that high CL trainees profited more from an unstructured form of sensitivity training while low CL trainees profited more from a highly structured human relations training program.

A series of studies have been conducted on how teachers' belief systems influence both the classroom environment and the students. In the first study carried out by Harvey and others (1966), kindergarten and first-grade teachers representing Systems 1, 3, and 4 were rated by trained observers on 26 dimensions, having to do with such things as enlistment of student participation, encouragement of student responsibility, teaching of concepts instead of isolated facts, perceptiveness, rule orientation, and punitiveness. A factor analysis of the rating scale yielded two major factors, fostering exploration and dictatorialness. The first factor included such items as attention to the individual child, teaching of concepts, ingenuity in the use of resources, and encouragement of creativity and diversity. Dictatorialness included such items as personal need for structure, use of rules without explanation, and coldness and inflexibility. System 1 teachers were significantly more dictatorial and less task-oriented than teachers from System 3 or System 4. There were no significant differences between

Systems 3 and 4 teachers on either factor, although System 3 teachers tended to be somewhat more dictatorial and less task oriented.

A second study by Harvey and others (1968) attempted to replicate the preceding one and show the differential influence of teachers of different belief systems upon their students who again were kindergarteners and first-graders. A factor analysis of the ratings made of the students on 30 dimensions, by trained observers, yielded seven factors: cooperation; student involvement; activity level; nurturance seeking; achievement level; helpfulness; and concreteness of response. Conceptual Systems Test (CST) measures of teacher abstractness were found to relate significantly to each of the student performance factors.

A third study (Harvey, 1970) investigated whether or not students were able to perceive teachers of different belief systems much as trained observers do. Students from kindergarten through sixth grade made ratings of teachers classified as System 1, 3, and 4 on dimensions similar to those used by trained observers. A factor analysis of the ratings made by the pupils yielded five factors: fostering exploration; fostering rigidity; fostering hostility; fostering cooperation; and fostering esprit du corps. System 4 teachers were rated significantly higher than Systems 1 or 3 teachers on fostering exploration, fostering cooperation, and fostering esprit du corps. System 1 teachers were significantly higher than Systems 3 or 4 teachers on fostering rigidity. System 3 teachers were rated significantly higher than Systems 1 and 4 teachers on fostering hostility. Supplementary evidence suggested that System 3 teachers, more than any other group, tended to pursue a classroom policy which, among other things, resulted in less structure and greater absence of direction than most of the students could utilize effectively.

Philosophical Orientation

It has been shown that a relationship exists between a teacher's classroom behavior and measures of his agreement-disagreement with the philosophy of pragmatism (Brown, 1966). Brown concluded his study by suggesting that future research should attempt to develop valid measures of various philosophical viewpoints.

Philosophers generally agree on the grouping of philosophical thought into more manageable subdivisions, but disagree on their number, nature, and importance (Kneller, 1964). Of the traditional subdivisions, perhaps the three most important have been idealism, realism, and pragmatism (Hardie, 1960). Of the newer philosophies, existentialism seems to have become the most firmly established. References in this study to idealism, realism, pragmatism, and existentialism as the major systems of educational philosophy seems to be supported by a current series of four volumes dealing with their educational implications (Bayles, 1966; Butler, 1966; Martin, 1969; Morris, 1966).

Most of the key concepts in educational philosophy are organized into three broad categories: ontology, epistemology, and axiology. Ontology, or the theory of reality, brings together concepts of the basic nature of the universe (as hostile, friendly, or neutral to man), freedom, chance, and determinism (the regularity of nature, including human nature) (Gowin, 1969). Epistemology, or the theory of knowledge, brings together concepts of definition, meaning, truth, logical validity of arguments (Kneller, 1966), and explanation. Axiology, or the theory of values, brings together concepts of the content of values (desires, wants, interests), kinds of values (moral, intrinsic, instrumental,

aesthetic, consummatory, utilitarian), the various intellectual standards for making value judgments between objects of value (degree of liking, conclusions of pure reason), and the various justifications for the intellectual standards themselves (the authority of radical subjectivity, custom, carefully criticized human experience) (Gowin, 1969).

It has been argued (Brown, 1968) that if man has no real basis for his behavior, that is, if he lives his life and conducts his professional affairs in the absence of any philosophical framework, then his behavior, at worst, is capricious and, at best, is inconsistent. The philosophical systems of idealism, realism, pragmatism and existentialism have been utilized in the present study to describe the subject's philosophical orientation. The following discussion, on the Ross Educational Philosophical Inventory (REPI), centers around the ontological, epistemological, and axiological beliefs of the four major systems, and, to a limited extent, their anticipated effect on education (Ross, 1970a).

Idealism. Modern idealism emphasizes ideas and not ideals as its name seems to suggest. Of the many facets of contemporary idealism, the religious form seems to have had the greatest impact on educational philosophy (MacDonald, 1965). The religious aspects may account, in part, for it being associated with authoritarianism (Brubacher, 1962; Neff, 1966).

For the purposes of this study, the philosophical beliefs of the Idealist are defined as follows: physical objects are ideas in the mind of the perceiver (Brubacher, 1962); goodness, truth, and beauty are enduring ideas (Kneller, 1964); reality is a projection of the supernatural mind (Neff, 1966); the mind is a supernatural entity (Brubacher, 1962); the origin of knowledge is supernatural (Curtis, 1958); knowledge

is true if it is coherent and cohesive (Butler, 1957); man receives knowledge by revelation (Neff, 1966); values are absolute and perfect (Kneller, 1964); man is essentially spiritual (MacDonald, 1965); and human conduct is divinely determined (Brubacher, 1962).

The Idealist is not greatly concerned with the ephemeral aspects of education. Dealing as it does in general and universal terms, the language of idealism is characteristically vague (Neff, 1966). To an Idealist, education is basically a process of spiritual growth; an attempt to unite the child to the spiritual world (MacDonald, 1965). The teacher should not only inspire his pupils, but also serve as a model for imitation (Brown, 1960). In Idealism, the teacher is probably accorded more importance than in any other educational philosophy (Kneller, 1964).

Realism. Contemporary realism is said to be an absolute system (Kneller, 1964). Of the many diverse groups classified as holding this philosophy, one very important group is the scientific Realist (Weber, 1966). This group has been identified as occupying a dominant place in American thinking (Morris, 1961). It is also considered to be responsible for the vast testing movement in education (Weber, 1966).

For the purposes of this study, the philosophical beliefs of the Realist are defined as follows: matter is real and exists independently of the mind (Brown, 1960); reality is determined by natural laws beyond man's control (Morris, 1961); the external world is objective and factual (Brameld, 1955); the universe is inherently orderly and purposeful (Brubacher, 1962); reality originates in the physical world (Weber, 1966); all present events have been caused by preceding events (Brameld, 1955); obtaining knowledge is essentially a process

of searching (Martin, 1969); man discovers knowledge from the physical world (Curtis, 1958); knowledge of the nature of physical reality is systematized in accord with the teachings of science (Neff, 1966); knowledge is true if it corresponds to physical reality (MacDonald, 1965); complete objectivity is possible (Broudy, 1962); values are objective, permanent, and unchanging (Kneller, 1964); there is a universal moral law (MacDonald, 1965); man is primarily a plastic nervous system to be molded along fixed scientifically ascertained lines (Kneller, 1964); and the mind is purely physical and can be explained completely (Butler, 1957).

In recent years the scientific movement in education has been supported by psychological research that appears to be reconfirming some of the older more mechanistic conceptions of human nature (Morris, 1961). To a Realist, learning is a matter of conditioning (Neff, 1966); and teaching methods can be authoritatively recommended to teachers (Antz, 1962). The Realist teacher is not concerned with personality development or with character formation as such, but only insofar as students may be conditioned to search for the objective truth of things in the world about them (Brown, 1960).

Pragmatism. Although it is known by a variety of names including instrumentalism, functionalism, and experimentalism (Kneller, 1964), pragmatism is perhaps the most wide-spread designation of this philosophy (MacDonald, 1965). In its modern form, it is primarily a theory of meaning and truth; and secondarily, a body of fairly flexible philosophical doctrines (Neff, 1966). It may be that pragmatism, in its special concern for education, is not so much a philosophy, but a way of getting along without one (MacDonald, 1965).

For the purposes of this study, the philosophical beliefs of the Pragmatist are defined as follows: reality is ever in the making (Brameld, 1955); what man cannot experience cannot be real (MacDonald, 1965); knowledge is adaptation to the environment (Brubacher, 1962); complete objectivity is impossible (MacDonald, 1965); knowledge is an instrument of survival (Neff, 1966); the test of any theory, belief, or doctrine is its practical consequences (MacDonald, 1965); knowledge is found by considering the practical consequences of ideas (Neff, 1966); an idea is true because it is useful (MacDonald, 1965); ideas are true if they can be validated, corroborated, and verified (Brameld, 1955); knowledge is operational (Neff, 1966); values are determined subjectively, relatively (Kneller, 1964); ideals are operational and practical (Kilpatrick, 1951); good or evil is undefined except functionally (Kneller, 1964); and good is whatever promotes a further course of action (Kilpatrick, 1951).

The educational aspects of pragmatism became considerably, but not wholly, absorbed in the movement known as Progressive Education. In 1918, the Progressive Education Association was organized and largely dominated American public education for nearly thirty years (Neff, 1966). To a Pragmatist: social orientation is the characteristic feature of his religious and moral education (Brubacher, 1962); ideas, beliefs and attitudes are important particularly for their formation and functioning in social interaction (Brown, 1960); and pragmatic education is unequivocally a philosophy of democratic education (Brameld, 1955).

Existentialism. Chronologically, if pragmatism is adolescent, existentialism is probably infantile, since it is, for the most part, a twentieth century product (Morris, 1961). Modern existentialism has

evolved through the influences, both positive and negative, of Descartes, Kant, Hegel, Kierkegaard, and Nietzsche (Kneller, 1967). Descartes, according to many existentialists (Neff, 1966), was responsible for the assumed dualism between the world of things (matter) and the world of man (mind), which has resulted in an inordinate preoccupation with the outer world of things, to the neglect of a proper concern for the inner world of man. It is perhaps significant to note that existentialism, which has only recently become popular in this country, seems to have flourished best in conditions of social and economic collapse, such as in Germany after World War I, and in France after World War II (Curtis, 1958).

For the purposes of this study, the philosophical beliefs of the Existentialist are defined as follows: reality exists in confronting problems consisting of love, freedom, and death (Kneller, 1967); the essence of reality is choice (Nash, 1966); life is a process of making decisions (Curtis, 1958); reality is inexplicable (Morris, 1966); by itself the universe is without meaning (Neff, 1966); reality occurs when man makes a commitment (Kneller, 1967); the existence of reality lies in man (Morris, 1966); knowledge does not exist unless it engages the feelings of the knower (Kneller, 1967); knowledge is a means of cultivation of the self (Morris, 1966); the only acceptable values are those that are freely chosen (Emery, 1971); personal values can only develop in an environment where man is free (Nash, 1966); the authentic life is one of self-determination (Butler, 1957); the basis of morality is freedom (Neill, 1964); man is free and responsible for all his actions (Morris, 1961); man is nothing until he acts (Sartre, 1961);

the individual should never be subordinated to the group (Curtis and Boulwood, 1953); and man is the sum of his actions (Kneller, 1967).

Existentialism communicates to education neither a set of rules to be mastered nor a set of doctrines to be memorized, but rather, a spirit or attitude that should permeate the whole educational enterprise (Neff, 1966). The crisis of modern public education is considered to be one of finding ways in which the demands of social conformity may be reconciled with the intrinsic natural diversity in human beings (Kneller, 1963). Its emphasis upon the strictly human suggests a high regard for the individual student. To an Existentialist: learning is a process of finding the real self (Moustakas, 1964); and education is a process of stimulating students to search themselves for their self (Kneller, 1964).

Philosophical Orientation and Educational Research

The history of philosophy seems to be the recurrence and resuscitation of the concepts of groups of philosophers who espouse similar positions with respect to the perennial questions raised by their discipline (Lucas, 1965). Each of the philosophical traditions is assumed to have logically analyzed these concepts, refined the underlying problems, posed the fundamental criticisms, and developed the appropriate solutions (Edel, 1956). Such a system of ontological, epistemological, and axiological beliefs should provide a theory of what is ultimately important in life, and hopefully, have some significant contribution to make to education (Hirst, 1963). Probably the prime function of any educational philosophy is to guide educational practice, since our actions are dependent on our motives and seemingly directed towards goals by the relevant explicit or implicit educational theories that

are held (Gowin, 1963). The practical application of philosophy to education may result from utilizing the systems of philosophy to interpret areas of educational concern, or alternatively, an attempt might be made to deduce the educational implications that may accrue from the various systematic philosophies (Newsome, 1959).

Brown and Vickery (1967) reported that the philosophic beliefs of teachers were more closely related to actual classroom practices than their educational beliefs on what constitutes "good" teaching. Philosophic beliefs were measured by the Philosophical Beliefs Q-sort which was developed in order to estimate a teacher's agreement-disagreement with the philosophy of pragmatism (Brown, 1962). Another study (Vickery and Brown, 1967) attempted to increase the consistency between a teacher's philosophic beliefs and actual classroom practices. Measures of philosophic beliefs were obtained from the Personal Beliefs Inventory, a revision of the Philosophical Beliefs Q-sort, but analysis of the study's data yielded negative findings.

Ames (1965) developed the Philosophical Beliefs Inventory (PBI) in order to measure the philosophical positions of school counselors and counselors in training. The standardization (long) form of the PBI consists of 250 forced-choice items; while the revised short form consists of 150 items. The five philosophical systems measured by the PBI are: Realism, Idealism, Pragmatism, Existentialism, and Phenomenology. Table 3 contains the test-retest reliability coefficients reported by Ames (1965), using a sample of 25 guidance counselors, and by Sawyer (1971), using a sample of 41 college freshmen.

The results reported in Table 3 disclosed higher reliabilities on the long form, used by Ames, than on the long and short forms, used

by Sawyer, for each of the five philosophical scales of the PBI. A comparison of the reliabilities reported by Sawyer for the long and short forms revealed higher reliabilities, on the long form, for Idealism and Pragmatism; and higher reliabilities, on the short form, for Realism, Existentialism, and Phenomenology.

TABLE 3

TEST-RETEST RELIABILITY COEFFICIENTS FOR THE PBI STANDARDIZATION
(LONG) FORM AND REVISED SHORT FORM

Philosophical System	Ames Long Form (N=25)	Sawyer	
		Long Form (N=41)	Short Form (N=41)
Realism	.89	.59	.67
Idealism	.90	.70	.59
Pragmatism	.74	.50	.34
Existentialism	.80	.41	.58
Phenomenology	.68	.44	.46

While no specific validity estimates for the PBI were provided, Ames (1968) analyzed the written philosophies of two graduate students who had completed the PBI and, in addition, he developed a form to be completed by a close associate of each individual involved in the standardization sample. He concluded that the analysis suggested external raters could judge the counselor's philosophy in a manner consistent with the responses on the PBI.

Concurrent validity studies of the PBI have been carried out by several investigators. Wise (1966) reported validity coefficients between the PBI and the Study of Values that ranged from $-.24$ to $.19$.

Gange (1967) correlated the five PBI scores with: Miller's Analogies Test; the Cooperative English Test; the Graduate Records Examination Advanced Test; Education; the Comprehensive English Test; the NDEA Comprehensive Examination in Counseling and Guidance; the Study of Values, the Strong Vocational Interest Blank, the Minnesota Multiphasic Personality Inventory; the Guilford-Zimmerman Temperament Survey; and the Edwards Personal Preference Schedule. He concluded that the PBI was apparently measuring something very different or perhaps did not measure anything at a very meaningful level. Sawyer (1971) correlated the five PBI scales and nine psychometric variables: School and College Ability Tests, Verbal, Quantitative, and Total; the Missouri Mathematics Placement Test; the Ohio State University Psychological Examination; the Chemistry Placement Test; the Trigonometry Placement Test; and the Cooperative History Test. While several correlations were found to be statistically significant from zero, the predictive value of the obtained correlations were quite small.

The Philosophic Polyphasic Value Inventory (PPVI) was developed (Westgaard, 1970) in order to measure a teacher's attitude on a scale ranging from conservative to liberal. The field testing of the PPVI was rather limited and the test findings were inconclusive. Jelinek (1969) constructed an instrument entitled A Scale for the Measurement of Basic Philosophical Beliefs. This instrument attempted to measure individual differences in the philosophical positions of experimentalism and dogmatism as they relate to the respondent's concept of self. In terms of the continuum of experimentalism-dogmatism, college students lacking formal instruction in philosophy tended to identify with eclecticism (defined here as approximately the middle of the continuum).

But college students who had experienced a unit of instruction on experimentalism and dogmatism tended to identify with experimentalism. These results seem to be in accord with those of Weinstock and Turner (1970) who found that teachers generally display a pragmatic frame of reference toward education.

The Ross Educational Philosophical Inventory (REPI) was developed in order to measure an individual's philosophical orientation toward four major systems of philosophy: Idealism, Realism, Pragmatism, and Existentialism (Ross, 1970b). A research study (Clark, 1971) conducted at the University of North Dakota, utilized the REPI scores of elementary majors in the College of Education and the New School of Behavioral Studies in Education. No significant differences were reported between the two groups of teacher-trainees. However, the research findings (Clark, 1971, p. 7) did suggest ". . . that the modeling behavior of college instructors should not be overlooked in planning the impact of a teacher preparation program on trainees."

CHAPTER III

METHOD AND PROCEDURE

Subjects

The subjects in this study consisted of juniors and seniors enrolled in the three elementary teacher preparation programs, at the University of North Dakota (UND), for the spring semester of the 1970-71 school year. There were 292 students who met the above criteria, and of these, 122 students were enrolled in the College of Education program; 147 students were enrolled in the New School of Behavioral Studies in Education program; and 23 students were enrolled in the Northern Plains Indian Teacher Corps program.

The regular elementary teacher education program at UND has been the responsibility of the College of Education since the founding of the University in 1883. A secondary program, organized under the New School in 1968, was designed to serve the needs of rural North Dakota by upgrading the professional levels of less-than-degree, in-service and pre-service teachers. The third program, the Teacher Corps, was established by the College of Education in 1970, as a special program to recruit and prepare better qualified teachers of Indian children.

All of the students in the College of Education and Teacher Corps program, and a random sample of 75 students in the New School

program, were asked to participate in this study providing they met the criteria for inclusion. Only those students who completed both the CST and the REPI were included in the research population. Of the 152 elementary majors meeting this requirement, there were: 71 subjects in the College of Education program, representing a return of 58 per cent; 58 subjects in the New School program, representing a return of 77 per cent; and 23 subjects in the Teacher Corps program, representing a return of 100 per cent.

Sources of Data

The sources of data used in this study were comprised of the following:

1. Voluntary completion of the Conceptual Systems Test (CST) and the Ross Educational Philosophical Inventory (REPI) for conceptual and philosophical orientation respectively, during the spring semester of the 1970-71 school year.
2. Voluntary completion of the Student Information sheet which was attached to the CST.
3. Students' records in the files of the Department of Education, New School of Behavioral Studies in Education, and the Northern Plains Indian Teacher Corps.

Instruments

The instruments used in this study were the Conceptual Systems Test (CST) and the Ross Educational Philosophical Inventory (REPI).

Conceptual Systems Test (CST)

Numerous instruments have been specifically developed as measures of Conceptual Systems. Probably the most frequently reported instruments

have been: the This I Believe (TIB) Test; Schroder's Paragraph Completion Test (PCT); and the recently developed CST. Of the three instruments, the TIB seems to have been the most extensively investigated. According to Harvey (1967) more than 30 validity studies have found that the TIB correlated significantly with a wide range of paper and pencil tests, and experimentally induced behavioral measures of Conceptual Systems.

In a study (Harvey and others, 1966) aimed at determining the effects of teacher belief systems upon the kind of classroom atmosphere they create, the CST and the TIB were used to measure the concreteness-abstractness of the teacher. Abstract teachers were reported to be superior to concrete teachers in the extent to which they produced what are presumed to be educationally desirable atmospheres in the classroom. While both the TIB and the CST predicted the significantly differential performance of concrete and abstract teachers in the classroom, the findings utilizing the TIB were more discriminative. Despite the superiority of the TIB, Harvey and others (1966, p. 384) concluded their study by noting it was " . . . possible that the superiority may be reduced or eliminated by a different scoring method of the CST now being tested."

The items in the CST (Harvey, 1967) were derived from statements made by subjects in their completion of the TIB, PCT, and other tests purporting to measure personality aspects related to the dimension of conceptual complexity. From a pool of several hundred items, Tryon's cluster and factor analysis yielded four factors (Tryon and Bailey, 1965). After factor analysis of each of five revisions of the CST by Tryon's method of cluster analysis (Tryon and Bailey, 1966) seven factors were extracted from five independent samples of respondents. Further revision of the CST yielded the six major factors utilized in the

present study: Divine Fate Control (DFC); Need for Structure-Order (NS-0); Need for People (NFP); Need to Help People (NHP); Interpersonal Aggression (IA); and Anomie (AN).

The final revision of the CST consists of 67 statements of belief to which the respondent indicates the strength of his agreement or disagreement on a six-point scale. The mean CST factor scores were found for each of the four Conceptual Systems, as measured by the TIB. Using the score profile that was developed, most subjects can be classified as a representative of one of the four major Conceptual Systems (Harvey, 1967). System 1 subjects are those who score above 4.19 on Divine Fate Control. Subjects are placed in System 2 if they score below 4.19 on Divine Fate Control; above 3.75 on Interpersonal Aggression; and above 3.39 on Anomie. Those who score below 4.19 on Divine Fate Control; below 3.75 on Interpersonal Aggression; and below 4.10 on Need for People are placed in System 3. The score pattern for System 4 is: below 4.19 on Divine Fate Control; below 4.10 on Need for Structure-Order; below 4.10 on Need for People; and below 3.75 on Interpersonal Aggression.

On the basis of Harvey's score profile the conceptual orientations of the 152 subjects in the present study were determined. There were: 77 subjects in System 1; 4 subjects in System 2; 52 subjects in System 3; 14 subjects in System 4; and 5 subjects, Admixtures.

A study by Harvey and others (1968) attempted, in part, to test the replicability of earlier findings (Harvey and others, 1966) that concrete and abstract teachers differed in the kinds of classroom environments they created for their students. They (Harvey and others, 1968) found that TIB measures of the concreteness-abstractness

of teachers yielded significant differences between concrete and abstract teachers on four of the seven measures of classroom environment. Measures of the teachers degree of abstractness using the CST found significant relationships with all seven measures of classroom environment as predicted.

Murphy and Brown (1970) studied the relationship between the teacher trainee's Conceptual System and their initial teacher style. In general, they found that when Harvey's CST was used to measure Conceptual Systems, the relationship was as predicted from the Conceptual Systems Theory. However, when Schroder's PCT was used to identify Conceptual Systems it failed to predict teaching style. Since the contingency coefficient of correlation between the Harvey and Schroder measures was only .10, then apparently the two instruments were measuring different things.

While the reliability of the CST has not been reported, an item analysis of the 152 responses to the CST in the present study showed an alpha coefficient of .88. Alpha coefficients for each of the CST factors were also found and are given in parenthesis: Divine Fate Control (.72); Need for Structure-Order (.81); Need for People (.69); Need to Help People (.64); Interpersonal Aggression (.49); and Anomie (.35).

Ross Educational Philosophical Inventory (REPI)

The purpose of the REPI is to determine a person's philosophy and the strength with which it is held. This was attempted by quantifying and weighing responses to ontological, epistemological and axiological statements from the philosophical systems of idealism, realism, pragmatism, and existentialism. The emphasis, in the REPI, is on the above four philosophies, as Ross (1970a) considers most other philosophical

perspectives are derived from these major systems of philosophy. Educational inventories usually contain statements dealing with "macroscopic attitudes" towards children, teaching, and school that may be criticized for being too superficial. According to the Ross Educational Philosophical Inventory (REPI) Manual (Ross, 1970b), the REPI focuses on the subject's "microscopic educational beliefs" about reality, knowledge, and values. By purposefully avoiding implied value judgments concerning which philosophy a "good" teacher should hold, the inventory presumably minimizes an unaccountable source of error in measurement known as acquiescence (Ross, 1970b).

The REPI Manual reviews the evidence in support of the instrument's content validity. By systematic analysis of leading text books in the field of educational philosophy, over 300 simple and relatively complex statements were selected that described and possibly differentiated among the philosophical beliefs of idealism, realism, pragmatism, and existentialism. In order to increase the validity of the REPI in determining one's philosophy, statements directly related to children, methodology, curriculum, and school were eliminated. During the REPI field tests, the inventory was administered to 1200 subjects made up of upperclassmen and graduate students in education. Each time the inventory was administered, items which appeared to be internally inconsistent were dropped and ambiguous items were restated for clarity, until only 160 items remained. These statements were then examined by professors of philosophy and educational philosophy at three universities. Statements consistently agreed upon by the experts as discriminative were kept, and further revision and item analysis resulted in the final version of the REPI that was utilized in the present study.

The final form of the REPI instructs subjects to indicate on a five-point Likert type scale how strongly they agree or disagree to 80 statements; 20 statements pertaining to each of the philosophical schools it attempts to measure. Ross (1970b) attempted to develop test norming data from a random sample (N=652) of juniors and seniors enrolled in professional education courses and graduate students with several years of teaching experience. However, the sample was not representative enough to establish significant national norms.

In the scoring of the REPI for the present study, each statement was given a value ranging from one, for strongly disagree, to five, for strongly agree. As a result, on each of the four philosophies measured, the minimum score obtainable was 20 and the maximum score obtainable was 100. The REPI Manual does not specify how the four scores so obtained may be utilized in classifying subjects according to their philosophical orientation.

For the purposes of this study the subject's philosophical orientation was determined by their highest score on the REPI. Subjects having a high score below 61 or with tied high scores were classified as having no defined philosophy. Of the 152 subjects making up the research population, there were: 8 Idealists, 4 Realists; 55 Pragmatists; 67 Existentialists; and 18 with no defined philosophy.

The reported reliability of the REPI using the split-half method was .91 and using the test-retest method .93 (Ross, 1970b). But there was no information in the REPI Manual as to the number, background and method of selection of subjects involved in the reported reliabilities. An item analysis of the 152 responses to the REPI in this investigation yielded an alpha coefficient of .84 for the four scales. Alpha

coefficients were also found for each of the four philosophical systems and are given in parentheses: Realism (.67); Idealism (.65); Pragmatism (.64); and Existentialism (.56).

Only one other inventory, Ames' PBI, is known to have had reliability indices reported for each of its philosophical scales (see Table 3, p. 47). Comparing the reliabilities of the philosophical systems common to the PBI and the REPI could be misleading for several reasons. First, two different methods were used to calculate the reliabilities. The alpha coefficients reported here for the REPI are derived from the Kuder-Richardson formulas, which generally yield lower reliability coefficients than would be obtained by using the PBI reported test-retest method (Ames, 1965; Sawyer, 1971). Second, the 250-item PBI with its five scales, should yield higher reliability coefficients than the 80-item REPI, with its four scales, because test length is directly related to reliability. Differences in reliability due to test length may be estimated using the Spearman-Brown prophecy formula. Third, the two instruments were designed for different test populations; the PBI for guidance personnel, and the REPI for upperclassmen and graduate students in education.

Because the REPI attempted to avoid a preconceived philosophical bias, the implications for decision-making and teacher-counseling with the inventory appears promising. Ross (1970b) contends, for example, that schools may be ineffective in accomplishing their goals because of the philosophical conflicts between administrators and teachers, and between teachers themselves. The suggestion is made that church schools which stress authority, immutable values and ideals, and acceptance of the supernatural, should be primarily

administered and staffed by Idealists; traditional schools emphasizing the great books and the scientific method, by Realists; experimental schools adopting a new form of school organization and new activities within the curriculum, by Pragmatists; and free schools, where freedom and self-awareness are the focal points, by Existentialists.

At least one major difficulty confronts the reasoning of the preceding paragraph. People tend to be considerably more complex than the formulations, in regard to philosophical orientation, suggest. Very few people would seem to be classified as being a "pure" philosophical type; it might even be suggested that an individual who is "pure" in a philosophical sense may, in fact, be seriously maladjusted, although this is conjectural. It would seem, however, that a well-rounded, self-actualizing individual would have varying amounts of each philosophical system as he builds his own system to fit his own personality.

Thus, a re-formulation of Ross's premise might be made in regard to major orientation of a program, choosing teachers whose major orientation match. Even this concession might seem unnecessarily restrictive on human freedom.

Statistical Procedures

The statistical procedures used in this study consisted of one-way analysis of variance, chi-square test, multiple comparisons among the means, zero-order correlation, and canonical correlation. Dunn's "c" test was selected for making and testing the significance of multiple comparisons. Canonical correlation analysis followed the method of Veldman (1967) which was based upon the work of Cooley and Lohnes (1962), and Koons (1962).

The Veldman method differs from the methods of Cooley and Lohnes, and Koons, in that certain equations have been modified in an attempt to reconcile inconsistencies and to simplify other formulations of this procedure. The output of the canonical analysis should suggest answers to questions concerning the number of ways in which the two sets of variables are related, the strength of the relationships, and the nature of the relationships so defined.

The research questions and hypothesis, outlined in Chapter I, were examined by the F test for any significant differences among the means on all but two of the test variables. On these two variables, age and year in program, chi-square tests were performed. In the case of a significant F ratio, Dunn's "c" test was used to determine which of the individual pairs of means were significant. Zero-order correlations were found for the experimental variables contained in the CST and REPI and canonical correlations for the relationships between the two sets of variables. The .05 level was used for evaluating the significance of the various test findings.

CHAPTER IV

ANALYSIS OF THE DATA

The data collected for this study are presented in the same order as were the research questions and hypothesis proposed in Chapter I.

Analysis of the Relationships Among Programs and the Variables: Age, Sex, Year in Program, Teaching Experience, CST, and REPI

The term "programs" alludes to the three elementary programs extant at the University of North Dakota at the time of the present study. The Conceptual Systems Test (CST) included the six CST factor scores while the Ross Educational Philosophical Inventory included measures of the four REPI scales. The research population was restricted to only those elementary majors who had completed both the CST and REPI. Age, sex, year in program, and teaching experience comprised the remaining data collected in this investigation.

The analyses of the data attempted to answer the question of what differences, if any, may have existed among the three programs. As data was not collected on the programs per se, differences attributed to the various programs are rather differences in the subjects populating these programs.

Research Question 1

What are the relationships among the three teacher training programs of the elementary majors and their age, sex, year in program, teaching experience, conceptual orientation, and philosophical orientation?

The chi-square test was used to examine the significance of the differences among programs for sex and year in program. The results of the chi-square test are found in Tables 4 and 5. With 2 degrees of freedom, the critical values of chi-square needed for significance are: 13.82, at the .001 level; and 9.21, at the .01 level. Significant differences were reported for sex, at the .01 level; and for year in program at the .001 level.

TABLE 4

CHI-SQUARE TEST OF SIGNIFICANT DIFFERENCES IN SEX AMONG THE PROGRAMS (N=152)

Program	Sex		df	Chi-Square	p
	Male	Female			
College of Education	4	67	2	11.14	<.01
New School	13	45			
Teacher Corps	7	16			

TABLE 5

CHI-SQUARE TEST OF SIGNIFICANT DIFFERENCES OF YEAR IN PROGRAM AMONG THE PROGRAMS (N=152)

Program	Year in Program		df	Chi-Square	p
	Junior	Senior			
College of Education	36	35	2	25.55	<.001
New School	17	41			
Teacher Corps	21	2			

One-way analyses of variance were utilized in examining the remaining variables in Research Question 1. The F ratios required for significance, with 2 and 149 degrees of freedom, are: 7.32, at the .001 level; 4.79, at the .01 level; and 3.07, at the .05 level. The reported results are found in Table 6. The findings indicated 10 of the 12 F ratios were significant. Significant F ratios, at the .001 level, revealed differences among programs for: age, teaching experience, Anomie, Realism, and Existentialism. Significant F ratios, at the .01 level, revealed differences among programs for: Divine Fate Control (DFC), Interpersonal Aggression (IA), and Idealism. Significant F ratios, at the .05 level, revealed differences among programs for: Need for People (NFP) and Pragmatism.

The significant F ratios in Table 6 suggested further testing for the significance of the differences between the individual pairs of means of the three groups of subjects. Dunn's "c" test was applied in making the multiple comparisons among the means. With 3 comparisons (m) and 149 degrees of freedom (v), the critical values of "c" needed for significance are 2.91, at the .01 level; and 2.42, at the .05 level.

The findings on the differences in age of subjects in the three programs are presented in Table 7. A significant difference was reported, at the .01 level, between the means for age of College of Education and New School students. The results indicated subjects in the New School were older than College of Education subjects.

The findings on the differences in teaching experience of subjects in the three programs are presented in Table 8. Significant differences were reported, at the .01 level, between the means for teaching experience of: College of Education and New School students; and College of Education and Teacher Corps students. Subjects in the New School and

TABLE 6

ANALYSES OF VARIANCE FOR AGE, TEACHING EXPERIENCE, REPI SCALES, AND CST FACTORS:
CLASSIFICATION ACCORDING TO PROGRAM

Variable	Group ^a	N	Mean	Source	df	S.S.	M.S.	F	p
Age	I	71	22.13	Among	2	1697.31	848.66	14.59	<.001
	II	58	29.41	Within	149	8668.16	58.18		
	III	23	25.74						
Teaching Experience	I	71	.00	Among	2	4.59	2.29	18.73	<.001
	II	58	.33	Within	149	18.25	.12		
	III	23	.39						
Divine Fate Control (DFC)	I	71	3.98	Among	2	1021.12	510.56	5.67	<.01
	II	58	1.12	Within	149	13415.20	90.04		
	III	23	4.83						
Need for Structure-Order (NSO)	I	71	4.96	Among	2	194.52	97.26	1.35	ns
	II	58	3.72	Within	149	10759.48	72.21		
	III	23	7.14						
Need to Help People (NHP)	I	71	8.00	Among	2	60.30	30.15	1.96	ns
	II	58	6.64	Within	149	2288.59	15.36		
	III	23	7.09						
Need for People (NFP)	I	71	9.44	Among	2	291.20	145.69	3.25	<.05
	II	58	6.53	Within	149	6669.31	44.76		
	III	23	7.13						
Interpersonal Aggression (IA)	I	71	-3.06	Among	2	106.90	53.45	6.36	<.01
	II	58	-1.77	Within	149	1251.34	8.40		
	III	23	-0.82						

TABLE 6--Continued

Variable	Group ^a	N	Mean	Source	df	S.S.	M.S.	F	p
Anomie (AN)	I	71	-1.86	Among	2	407.13	203.57	18.31	<.001
	II	58	-0.95	Within	149	1656.50	11.12		
	III	23	2.97						
Idealism	I	71	60.34	Among	2	670.37	335.18	7.08	<.01
	II	58	59.22	Within	149	7049.71	47.31		
	III	23	65.52						
Realism	I	71	57.06	Among	2	1051.51	525.76	10.43	<.001
	II	58	56.78	Within	149	7518.20	50.46		
	III	23	64.26						
Pragmatism	I	71	67.82	Among	2	350.14	175.07	4.32	<.05
	II	58	67.71	Within	149	6040.49	40.54		
	III	23	72.00						
Existentialism	I	71	68.55	Among	2	762.59	281.29	7.66	<.001
	II	58	66.81	Within	149	7419.80	49.80		
	III	23	73.61						

^aGroup I are College of Education subjects

Group II are New School subjects

Group III are Teacher Corps subjects

Teacher Corps programs were found to have had more teaching experience than their counterparts in the College of Education.

TABLE 7

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR AGE:
CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College of Education	New School	Teacher Corps
College of Education		5.40**	1.97
New School			1.96
Teacher Corps			

**Significant at the .01 level.

TABLE 8

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR TEACHING
EXPERIENCE: CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College of Education	New School	Teacher Corps
College of Education		5.29**	4.65**
New School			.73
Teacher Corps			

**Significant at the .01 level.

The findings on the differences for Divine Fate Control (DFC) of subjects in the three programs are presented in Table 9. Significant differences were reported between the means of: College of Education and New School Students, at the .01 level; and New School and Teacher

Corps students, at the .05 level. College of Education and Teacher Corps subjects scored higher on DFC than New School subjects.

TABLE 9

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR DIVINE FATE CONTROL: CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College of Education	New School	Teacher Corps
College of Education		3.03**	.38
New School			2.54*
Teacher Corps			

*Significant at the .05 level.

**Significant at the .01 level.

The findings on the differences in Need for People (NFP) of subjects in the three programs are presented in Table 10. A significant difference was reported, at the .05 level, between the means of College of Education and New School students. College of Education subjects revealed a greater NFP than New School subjects.

TABLE 10

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR NEED FOR PEOPLE: CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College of Education	New School	Teacher Corps
College of Education		2.46*	1.44
New School			.37
Teacher Corps			

*Significant at the .05 level.

The findings on the differences for Interpersonal Aggression (IA) of subjects in the three programs are presented in Table 11. Significant differences were reported between the means of: College of Education and Teacher Corps students, at the .01 level; and College of Education and New School students, at the .05 level. The means for IA of New School and Teacher Corps subjects were higher than the IA mean of College of Education subjects.

TABLE 11

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR INTERPERSONAL AGGRESSION: CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College Education	New School	Teacher Corps
College of Education		2.52*	3.22**
New School			1.33
Teacher Corps			

*Significant at the .05 level.

**Significant at the .01 level.

The findings on the differences for Anomie of subjects in the three programs are presented in Table 12. Significant differences were reported between the means of: College of Education and Teacher Corps students, at the .01 level; and New School and Teacher Corps students, at the .05 level. Teacher Corps subjects revealed a higher mean for Anomie than subjects in either of the other two programs.

TABLE 12

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR ANOMIE:
CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College of Education	New School	Teacher Corps
College of Education		1.53	6.03**
New School			4.18**
Teacher Corps			

**Significant at the .01 level.

The findings on the differences for Idealism, Realism, Pragmatism, and Existentialism of subjects in the three programs are presented in Tables 13, 14, 15, and 16. Significant differences were reported among the means of the three groups for each of the four major philosophies. Teacher Corps subjects had a higher mean than College of Education and New School subjects for: Idealism, Realism, and Existentialism, at the .01 level; and Pragmatism, at the .05 level.

TABLE 13

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR IDEALISM:
CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College of Education	New School	Teacher Corps
College of Education		.92	3.14**
New School			3.72**
Teacher Corps			

**Significant at the .01 level.

TABLE 14

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR IDEALISM:
CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College of Education	New School	Teacher Corps
College of Education		.22	4.22**
New School			4.28**
Teacher Corps			

**Significant at the .01 level.

TABLE 15

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR PRAGMATISM:
CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College Education	New School	Teacher Corps
College of Education		.10	2.74*
New School			2.74*
Teacher Corps			

*Significant at the .05 level.

TABLE 16

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR
EXISTENTIALISM: CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Program	College of Education	New School	Teacher Corps
College of Education		1.39	2.88**
New School			3.91**
Teacher Corps			

**Significant at the .01 level.

Analysis of the Relationships Among Conceptual
Orientation and the Variables: Age, Sex,
Year in Program, and Teaching Experience

The conceptual orientations of the subjects were determined by Harvey's CST score profile as described in Chapter III. Using Harvey's score profile most subjects were classified as either System 1, System 2, System 3, or System 4. Subjects who could not be classified as belonging to one of the four major Conceptual Systems were referred to as Admixtures.

Teacher trainees differing in conceptual orientation were reported to have different initial teaching styles. How the teacher trainees' conceptual orientations are related to various other variables raises many questions. Some of these questions may be partly answered, at least, by the present analysis of data.

Research Question 2

What are the relationships among the conceptual orientations of the elementary majors and their age, sex, year in program, and teaching experience?

Chi-square tests were performed on the variables of age and year in program. In Tables 17 and 18, with 4 degrees of freedom, the values of chi-square needed for significance are: 13.28, at the .01 level; and 9.49, at the .05 level.

TABLE 17

CHI-SQUARE TEST OF SIGNIFICANT DIFFERENCES IN SEX AMONG THE
CONCEPTUAL ORIENTATIONS

Conceptual Orientations	Sex		df	Chi-Square	p
	Male	Female			
System 1	11	66	4	5.08	ns
System 2	1	3			
System 3	9	43			
System 4	4	10			
Admixtures	1	4			

TABLE 18

CHI-SQUARE TEST OF SIGNIFICANT DIFFERENCES OF YEAR IN PROGRAM
AMONG THE CONCEPTUAL ORIENTATIONS

Conceptual Orientations	Year in Program		df	Chi-Square	p
	Junior	Senior			
System 1	42	35	4	9.64	<.05
System 2	1	3			
System 3	24	28			
System 4	3	11			
Admixtures	4	1			

No significant relationship between the sex of the subjects and their conceptual orientations can be found in Table 17. Although not reaching the level of significance, it was noted that there were six times as many System 1 females as System 1 males.

Analysis of the data for year in program among the conceptual orientations of the subjects can be found in Table 18. The reported findings indicated a significant difference between juniors and seniors and their conceptual orientations.

The results in Table 19 were obtained by performing one-way analyses of variance to test the significance of the differences among the means for age and teaching experience of subjects grouped according to their conceptual orientation. With 4 and 147 degrees of freedom, the values of F needed for significance are: 4.95 at the .001 level; 3.48, at the .01 level; and 2.45 at the .05 level.

An examination of Table 19 revealed there were no significant F ratios. Although the results were not significant, it was observed that Admixtures were noticeably younger than subjects in Systems 1, 2, 3, and 4.

Analysis of the Relationships Among Philosophical
Orientation and the Variables: Age, Sex, Year in
Program, and Teaching Experience

The philosophical orientations of the teacher trainees were determined by the method of highest score on the REPI as described in Chapter III. Using this method, subjects were classified as either Idealist, Realist, Pragmatist, or Existentialist. Subjects who could not be classified by this method were designated as holding no defined philosophy.

It is not known whether the teacher trainee's philosophical orientations are related to: personal characteristics, such as age and sex; previous background, such as teaching experience; and level of training, such as junior or senior. Analysis of the data may furnish some of the answers to these questions.

TABLE 19

ANALYSES OF VARIANCE FOR AGE AND TEACHING EXPERIENCE: CLASSIFICATION ACCORDING
TO CONCEPTUAL ORIENTATION

Variable	Group ^a	N	Mean	Source	df	S.S.	M.S.	F	p
Age	Sys 1	77	26.45	Among	4	210.66	52.67	.76	ns
	Sys 2	4	25.74	Within	147	1015.81	69.08		
	Sys 3	52	24.31						
	Sys 4	14	25.29						
	Admix	5	22.33						
Teaching Experience	Sys 1	77	.25	Among	4	.77	.19	1.28	ns
	Sys 2	4	.25	Within	147	22.07	.15		
	Sys 3	52	.12						
	Sys 4	14	.07						
	Admix	5	.17						

^aSys 1 are System 1 subjects.
 Sys 2 are System 2 subjects.
 Sys 3 are System 3 subjects.
 Sys 4 are System 4 subjects.
 Admix are Admixtures

Research Question 3

What are the relationships among the philosophical orientations of the elementary majors and their age, sex, year in program, and teaching experience?

Chi-square tests were performed on two of the variables: sex and year in program. No significant differences, at the .05 level, were found in Table 20 for the sex of the subjects and their philosophical orientations, and in Table 21, for year in program of the subjects and their philosophical orientations.

TABLE 20

CHI-SQUARE TEST OF SIGNIFICANT DIFFERENCES IN SEX AMONG THE PHILOSOPHICAL ORIENTATIONS

Philosophical Orientations	Sex		df	Chi-Square	p
	Male	Female			
Idealist	1	7	4	4.68	ns
Realist	1	3			
Pragmatist	12	43			
Existentialist	6	61			
Nophil ^a	4	14			

^aNo defined philosophy.

TABLE 21

CHI-SQUARE TEST OF SIGNIFICANT DIFFERENCES OF YEAR IN PROGRAM AMONG THE PHILOSOPHICAL ORIENTATIONS

Philosophical Orientations	Year in Program		df	Chi-Square	p
	Junior	Senior			
Idealist	4	4	4	6.20	ns
Realist	3	1			
Pragmatist	20	35			
Existentialist	38	29			
Nophil ^a	9	9			

^aNo defined philosophy.

One-way analyses of variance were performed to test the significance of the differences among the means for age and teaching experience of subjects grouped on the bases of philosophical orientation. The results of the analyses of variance were summarized in Table 22. The reported findings indicated the F ratios for age and teaching experience were not significant. Although the F ratio for age was not significant, Realists were noted to be, on the average, over eleven years older than Idealists.

Analysis of the Relationships Between Conceptual and Philosophical Orientations

This section of the analysis of data has been divided into three parts. The first part considers the relationships among the subjects' scores, on the CST factor Need to Help People (NHP), and their conceptual orientations. The second part examines the relationships among the subjects' conceptual orientations and their REPI scores. The third part studies the relationships among the six CST factors and the four REPI scales.

Need to Help People (NHP) was the only CST factor score that was not included in Harvey's score profile for the classification of subjects into Conceptual Systems. Because this CST factor was not used to classify subjects, one-way analysis of variance was performed to test the significance of the differences among the means for NHP of subjects grouped according to conceptual orientation.

The results of the one-way analysis of variance, shown in Table 23, indicated a significant F ratio at the .001 level. This suggested further testing using Dunn's procedure in making multiple comparisons among the individual pairs of means. With 10 comparisons (m) and 147

TABLE 22

ANALYSES OF VARIANCE FOR AGE AND TEACHING EXPERIENCE: CLASSIFICATION
ACCORDING TO PHILOSOPHICAL ORIENTATION

Variable	Group ^a	N	Mean	Source	df	S.S.	M.S.	F	p
Age	Ideal	8	22.38	Among	4	466.70	116.68	1.73	ns
	Real	4	33.68	Within	147	9898.97	67.34		
	Prag	55	26.86						
	Exist	67	24.41						
	Nophil	18	25.45						
Teaching Experience	Ideal	8	.13	Among	4	.88	.22	1.46	ns
	Real	4	.68	Within	147	21.97	.15		
	Prag	55	.21						
	Exist	67	.16						
	Nophil	18	.18						

^aIdeal are Idealists.

Real are Realists.

Prag are Pragmatists.

Exist are Existentialists.

Nophil have no defined philosophy.

TABLE 23

ANALYSIS OF VARIANCE FOR NEED TO HELP PEOPLE: CLASSIFICATION
ACCORDING TO CONCEPTUAL ORIENTATION

Variance	Group ^a	N	Mean	Source	df	S.S.	M.S.	F
Need to Help	Sys 1	77	8.80	Among	4	619.98	154.90	13.17***
	Sys 2	4	8.11	Within	147	1729.01	11.76	
People (NHP)	Sys 3	52	6.98					
	Sys 4	14	2.53					
	Admix	5	2.77					

***Significant at the .001 level.

^aSys 1 are System 1 subjects.
 Sys 2 are System 2 subjects.
 Sys 3 are System 3 subjects.
 Sys 4 are System 4 subjects.
 Admix are Admixtures.

degrees of freedom (v), the critical values of "c" needed for significance are 3.34 at the .01 level; and 2.84, at the .05 level.

The findings on the differences among the means for NHP, of the subjects with various conceptual orientations, are presented in Table 24. Significant differences were reported between: System 1 and System 3 subjects, at the .05 level; System 1 and System 4 subjects, at the .01 level; System 2 and System 4 subjects at the .05 level; System 3 and System 4 subjects, at the .01 level, and System 1 and Admixtures, at the .01 level. Systems 1, 2, and 3 subjects scored higher on NHP than System 4 subjects. System 1 subjects also scored higher on NHP than System 3 subjects and Admixtures.

Research Hypothesis

There are no significant relationships between the conceptual and philosophical orientations of the elementary majors.

TABLE 24

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR NEED TO HELP PEOPLE: CLASSIFICATION ACCORDING TO PROGRAM (N=152)

Conceptual Orientations	System 1	System 2	System 3	System 4	Admixtures
System 1		.39	2.96*	6.29**	3.81**
System 2			.63	2.87	2.32
System 3				4.31**	2.62
System 4					.13
Admixtures					

*Significant at the .05 level.

**Significant at the .01 level.

Part II examined each of the four REPI scales for differences among the means of the subjects grouped by conceptual orientation. One-way analyses of variance were again performed to test for the significance of the differences.

The findings of the one-way analyses of variance are presented in Table 25. Significant F ratios were reported for: Idealism, at the .001 level; Realism, at the .01 level; and Pragmatism and Existentialism, at the .05 level. Also, the four philosophies were noted to have large within-group variances, with the largest variance being recorded for Realism.

Yet another point might be made in relation to Table 25. System 4 subjects systematically, with one exception, scored lower on the REPI scales than any other group. Perhaps this is due to abstract subjects being more critical in their responses; they could differentially respond to each item, rather than generalizing about an item class, such as being "pragmatic," "realistic," "existentialistic," or "idealistic." One might

TABLE 25

ANALYSES OF VARIANCE FOR IDEALISM, REALISM, PRAGMATISM, AND EXISTENTIALISM:
CLASSIFICATION ACCORDING TO CONCEPTUAL ORIENTATION

Variable	Group ^a	N	Mean	Source	df	S.S.	M.S.	F	p
Idealism	Sys 1	77	63.87	Among	4	1801.26	450.32	11.18	<.001
	Sys 2	4	61.25	Within	147	5918.82	40.26		
	Sys 3	52	58.35						
	Sys 4	14	53.93						
	Admix	5	56.67						
Realism	Sys 1	77	59.43	Among	4	744.93	186.23	3.50	<.01
	Sys 2	4	62.75	Within	147	7824.78	52.23		
	Sys 3	52	57.50						
	Sys 4	14	53.93						
	Admix	5	51.50						
Pragmatism	Sys 1	77	67.08	Among	4	465.38	116.34	2.89	<.05
	Sys 2	4	76.00	Within	147	5925.25	40.31		
	Sys 3	52	68.02						
	Sys 4	14	65.00						
	Admix	5	66.17						
Existentialism	Sys 1	77	69.23	Among	4	700.94	175.24	3.44	<.05
	Sys 2	4	77.25	Within	147	7481.45	50.89		
	Sys 3	52	68.83						
	Sys 4	14	64.29						
	Admix	5	64.33						

^aSys 1 are System 1 subjects.
Sys 2 are System 2 subjects.
Sys 3 are System 3 subjects.

Sys 4 are System 4 subjects.
Admix are Admixtures.

conjecture (prior to a data analysis) that System 4 individuals would be the group most likely to be in the "existentialist" class. That they scored lowest of the different conceptual systems clearly impugns this conjecture.

Because of the significant F ratios in Table 25, Dunn's "c" test was again applied in making multiple comparisons among the means. The findings in Table 26 indicated differences among the means, for Idealism, of subjects with various conceptual orientations. Significant differences were reported, at the .01 level, between the means of: System 1 and 3 subjects; and System 1 and 4 subjects. System 1 subjects were found to be more "idealistic" than either System 3 or 4 subjects.

TABLE 26

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR IDEALISM:
CLASSIFICATION ACCORDING TO CONCEPTUAL ORIENTATION (N=152)

Conceptual Orientation	System 1	System 2	System 3	System 4	Admixtures
System 1		.81	4.88**	5.39**	2.46
System 2			.89	2.04	1.08
System 3				2.29	.57
System 4					.83
Admixtures					

**Significant at the .01 level.

There were no significant differences in Table 27, among the means for Realism, of subjects with various conceptual orientations. The results were rather unexpected as the F ratio for Realism in Table 25 was significant at the .01 level.

TABLE 27

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR REALISM:
CLASSIFICATION ACCORDING TO CONCEPTUAL ORIENTATION (N=152)

Conceptual Orientation	System 1	System 2	System 3	System 4	Admixtures
System 1		.89	1.48	2.60	2.38
System 2			1.39	2.13	2.32
System 3				1.63	1.77
System 4					.66
Admixtures					

The findings on the differences among the means for Pragmatism of subjects with various conceptual orientations are presented in Table 28. Significant differences were reported, at the .01 level, between the means of: Systems 1 and 4 subjects; and Systems 2 and 4 subjects. Both Systems 1 and 2 subjects were found to be more "pragmatic" than System 4 subjects.

TABLE 28

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR PRAGMATISM:
CLASSIFICATION ACCORDING TO CONCEPTUAL ORIENTATION (N=152)

Conceptual Orientation	System 1	System 2	System 3	System 4	Admixtures
System 1		2.13	.93	3.58**	.31
System 2			2.42	3.34**	2.31
System 3				1.58	.62
System 4					.35
Admixtures					

**Significant at the .01 level.

The findings on the differences among the means for Existentialism of subjects with various conceptual orientations are presented in Table 29. Significant differences were reported between the means of: System 2 and 3 subjects, at the .01 level; and System 2 and 4 subjects, at the .05 level. System 2 subjects were found to be more "existentialist" than either System 3 or 4 subjects.

TABLE 29

DUNN'S "c" TEST OF MULTIPLE COMPARISONS AMONG THE MEANS FOR
EXISTENTIALISM: CLASSIFICATION ACCORDING TO CONCEPTUAL
ORIENTATION (N=152)

Conceptual Orientation	System 1	System 2	System 3	System 4	Admixtures
System 1		2.19	.11	2.39	1.49
System 2			3.50**	3.21*	2.70
System 3				2.11	1.37
System 4					.01
Admixtures					

*Significant at the .05 level.

**Significant at the .01 level.

Part III considered the relationships between the two sets of variables that were used to measure conceptual and philosophical orientations. Initial analysis of the data consisted of examining the intercorrelations within each set of variables. The intercorrelations of the CST variables are shown in Table 30. With 150 degrees of freedom, a correlation coefficient of .20 is needed for significance, at the .05 level. An examination of Table 30 indicated nine of the fifteen zero-order correlation coefficients were significant. High positive

correlations (above .40) were reported for: Divine Fate Control and Need for Structure-Order; Need for People and Need to Help People; and Interpersonal Aggression and Anomie.

TABLE 30
INTERCORRELATIONS AMONG THE CST FACTORS (N=152)

Predictor Variables	Divine Fate Control	Need for Structure-Order	Need for People	Need to Help People	Interpersonal Aggression	Anomie
Divine Fate Control		.56*	.33*	.24*	-.27*	.14
Need for Structure-Order			.21*	.17	.02	.29*
Need for People				.46*	-.13	-.01
Need to Help People					-.27*	-.04
Interpersonal Aggression						.41*
Anomie						

*Significant at the .05 level.

The intercorrelations of the four REPI variables can be found in Table 31. The results indicated all six zero-order correlation coefficients were significant at the .05 level. High positive correlations (above .40) were reported for: Idealism and Existentialism; Realism and Pragmatism; and Pragmatism and Existentialism.

TABLE 31
 INTERCORRELATIONS AMONG THE REPI SCALES (N=152)

Criterion Variables	Idealism	Realism	Pragmatism	Existentialism
Idealism		.37*	.35*	.44*
Realism			.45*	.30*
Pragmatism				.65*
Existentialism				

*Significant at the .05 level.

The intercorrelations of the CST and REPI variables are presented in Table 32. The reported findings showed 10 of the 24 zero-order correlation coefficients were significant at the .05 level. In multiple-regression terminology, the intercorrelations among two sets of variables are known as "validities." For example, the results in Table 32 indicated significant positive validities between the CST factor, Anomie, and each of the four REPI scales. However, the only high "validity" (above .40) was reported for the CST variable, Divine Fate Control, and the REPI variable, Idealism.

The intercorrelations of the CST and REPI variables on the four sets of canonical functions are presented in Table 33. The resulting "product-factors" can be interpreted as factor loadings in terms of the original variables (Veldman, 1967). An examination of Table 33 indicated the first CST and REPI product-factors contained the highest loadings. The major variables on the first set of canonical functions were Divine Fate Control and Idealism.

TABLE 32

INTERCORRELATIONS OF THE CST AND THE REPI VARIABLES (N=152)

CST Variables	REPI Variables			
	Idealism	Realism	Pragmatism	Existentialism
Divine Fate Control	.53*	.25*	.09	.12
Need for Structure-Order	.38*	.30*	.16	.04
Need for People	.35*	.11	.15	.21*
Need to Help People	.14	.17	.06	.08
Interpersonal Aggression	-.04	-.01	.12	.10
Anomie	.26*	.25*	.26*	.24*

*Significant at the .05 level.

TABLE 33

CORRELATIONS OF CST FACTORS AND REPI SCALES WITH SIGNIFICANT CANONICAL FUNCTIONS (N=152)

	Product-Factors			
	1	2	3	4
CST Factors				
Divine Fate Control	.89	-.21	-.30	-.21
Need for Structure-Order	.69	-.53	.28	.37
Need for People	.54	.44	-.11	.09
Need to Help People	.25	-.07	.30	-.61
Interpersonal Aggression	-.10	.41	.35	.43
Anomie	.44	.29	.71	.03
REPI Scales				
Idealism	.98	.17	-.11	.06
Realism	.52	-.27	.74	-.34
Pragmatism	.34	.39	.72	.47
Existentialism	.36	.83	.38	-.15

Since a significant canonical correlation was reported in Table 34 the research hypothesis was rejected. The two vectors of the first canonical functions contained high positive weights for two of the variables, Divine Fate Control (DFC) and Idealism. In effect, one would expect the relative positions of the subjects, on DFC and Idealism, to be approximately the same.

TABLE 34

SUMMARY OF CANONICAL CORRELATION ANALYSIS OF THE RELATIONSHIP BETWEEN THE CST FACTORS AND THE REPI SCALES (N=152)

	Canonical Vectors of Weights			
	1	2	3	4
CST Factors				
Divine Fate Control	.80	.08	-.59	-.39
Need for Structure-Order	.21	-.67	.36	.57
Need for People	.40	.58	-.16	.36
Need to Help People	-.10	-.15	.41	-.59
Interpersonal Aggression	-.04	.28	-.03	.16
Anomie	.38	.32	.58	-.17
REPI Scales				
Idealism	.97	-.08	-.55	.16
Realism	.21	-.45	.63	-.42
Pragmatism	-.01	-.02	.55	.73
Existentialism	-.12	.89	.05	-.51
Roots	.37	.08	.07	.02
Canonical Correlations	.61**	.28	.26	.13

**Significant at the .01 level.

CHAPTER V

SUMMARY, DISCUSSION AND CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was twofold: first, to determine the differences among the subjects (juniors and seniors) in the three elementary teacher training programs offered at the University of North Dakota (UND) during the spring semester of the 1970-71 school year; and second, to determine the relationships between the Conceptual Systems Test (CST) variables and the Ross Educational Philosophical Inventory (REPI) variables. The three elementary teacher training programs at UND were: College of Education; New School of Behavioral Studies in Education; and Northern Plains Indian Teacher Corps.

The following research questions were proposed in this study:

1. What are the relationships among the three teacher training programs of the elementary majors and their age, sex, year in program, teaching experience, conceptual orientation, and philosophical orientation?
2. What are the relationships among the conceptual orientations of the elementary majors and their age, sex, year in program, and teaching experience?
3. What are the relationships among the philosophical orientations of the elementary majors and their age, sex, year in program, and teaching experience?

The following research hypothesis was proposed in this study:

There are no significant relationships between the conceptual and philosophical orientations of the elementary majors.

On the basis of Harvey's score profile, the conceptual orientations of the 152 subjects were found to be distributed as follows: approximately 51 per cent in System 1; 3 per cent in System 2; 34 per cent in System 3; 9 per cent in System 4; and 3 per cent Admixtures. Among the undergraduate education majors tested by Harvey (1970), approximately 45 per cent were found to represent System 1; 5 per cent System 2; 25 per cent System 3; 5 per cent System 4; and 20 per cent were Admixtures.

Using the method of highest score on the REPI, the philosophical orientations of the 152 subjects yielded the following distribution: approximately 5 per cent Idealists; 3 per cent Realists; 36 per cent Pragmatists; 44 per cent Existentialists; and 12 per cent with no defined philosophy.

Both the CST and the REPI were completed by the subjects during the spring semester of the 1970-71 school year. The statistical procedures utilized in the analyses of the data consisted of: one-way analysis of variance, chi-square test, Dunn's "c" test for making multiple comparisons among the means, zero-order correlation, and the Veldman method of canonical correlation. The .05 level was used for evaluating the significance of the results.

The findings of the present study are summarized below in the same order in which the research questions and hypotheses were presented:

1. There were significant differences among the programs on the following variables: age, sex, year in program, teaching experience,

Divine Fate Control (DFC), Need for People (NFP), Interpersonal Aggression (IA), Anomie, Idealism, Realism, Pragmatism, and Existentialism.

2. There was a significant difference for year in program among the conceptual orientations of the subjects.

3. There were no significant differences for age, sex, year in program, and teaching experience among the philosophical orientations of the subjects.

4. There was a significant canonical relationship between the CST variable, Divine Fate Control, and the REPI variable, Idealism.

Discussion and Conclusions

Multiple comparisons found a number of significant differences among the programs. Part of the results showed elementary majors in the New School program were older and had more teaching experience than their peers in the College of Education program. These findings suggested the New School was successful in achieving one of its original objectives: the recruitment and training of "less-than-degree" teachers who would presumably return to teach in North Dakota as degree teachers (Alm and others, 1967c).

For two of the variables, sex and year in program, chi-square tests indicated significant differences. Evidence of a lack of males in the College of Education program seemed to imply that only the New School and Teacher Corps successfully supported the recent trend towards training more men to become elementary school teachers. If the financial assistance offered to New School trainees was a primary consideration in program selection, as suggested by Clark (1971), it seems plausible that Teacher Corps interns could be similarly influenced. Furthermore, one might also suggest that financial assistance was a major factor

contributing to the higher proportion of males in the New School and Teacher Corps programs. The low proportion of juniors in the New School sample was due to lack of response. The high proportion of juniors, in the Teacher Corps sample, resulted from these subjects happening to be in their initial year of a two-year baccalaureate degree program (Lemon and others, 1969).

Multiple comparisons yielded significant differences among the three programs on the following CST variables: Divine Fate Control (DFC); Need for People (NFP); Interpersonal Aggression (IA); and Anomie. When compared to the New School, students in the regular program indicated a greater respect for authority and a greater need to seek group approval for their actions, interests, and values. However, New School students revealed a stronger tendency towards interpersonal aggression than regular program students. In comparison, Teacher Corps interns indicated a greater respect for authority than New School students, and a stronger tendency towards interpersonal aggression than regular students. Teacher Corps interns also scored higher on Anomie than either of the other two groups. Anomie has been considered a consequence of "social disorganization," such that the individual finds himself in a "psychological void and state of nothingness" (Harvey, 1963). This implies that Teacher Corps subjects, with their high score on Anomie, may be characterized by such traits as alienation, feelings of insecurity, and low-self esteem. The inferred behavior of the interns in the present study seemed to support similar behavioral patterns that were reported in a national survey of Teacher Corps (Arth and Wagoner, 1969).

Multiple comparisons indicated Teacher Corps interns were more Idealistic, Realistic, Pragmatic, and Existentialistic than subjects in either the College of Education or the New School. The consistently higher scores of the interns on each of the four philosophical scales may have been due to acquiescence since the scoring procedure of the REPI assigned high scores to agree responses. In this case, no meaningful interpretation could be attached to the results. There were no significant differences, on the REPI scales, between College of Education and New School subjects. The latter finding was also reported by Clark (1971).

Analyses of variance revealed no significant F ratios for the age and teaching experience of subjects grouped by conceptual orientation. However, chi-square tests of the same groups for sex and year in program found a significant difference for year in program. The results indicated there was a higher incidence of System 4 functioning among seniors than juniors. This was the expected direction of conceptual development under "ideal" training conditions (Harvey and others, 1961). That conditions may be less than ideal was revealed in a study of two teacher training institutions in which the highest incidence of System 4 functioning occurred among juniors (Harvey, 1970).

Similar statistical tests, utilizing the philosophical orientations of the subjects, indicated no significant differences in their age, sex, year in program, and teaching experience. While Clark found differences in the pre and post test of the Idealism scale, there was no evidence that these changes may be permanent. For example, Capelluzzo and Brine (1969) concluded from their study that individuals come

into teacher training, and subsequently become teachers, with basic values that do not appreciably change over the years.

No explanation was offered by Harvey (1967) for omitting one of the CST factors, Need to Help People (NHP), from the CST score profile. Multiple comparisons indicated several significant differences among the means on NHP of subjects grouped by conceptual orientation. However, it was evident that NHP did not clearly differentiate among the conceptual orientations and so obviously it was not needed for classification purposes.

One-way analyses of variance indicated the F ratios of the four REPI scales were significant, but multiple comparisons among the individual pairs of means for Realism yielded negative results. Although all possible combinations of means were not tested for significance, even if such a procedure were successful, it would not have provided the present study with any useful information.

On the basis of the definitions in Chapters I and II, and prior to the collection of the data, it seemed reasonable to conjecture higher scores for: System 1 individuals on Idealism; System 3 individuals on Pragmatism; and System 4 individuals on Existentialism. The reported findings for System 1 subjects were in the hypothesized direction. The generally lower scores of Systems 3 and 4 subjects on the major philosophical systems, while unexpected, were not contradictory to the Conceptual Systems Theory. The lower scores seem to have resulted from abstract subjects making finer discriminations on each of the statements contained in the various REPI scales. As the scores of Admixtures were consistently intermediate to those of Systems 3 and 4 subjects, this

suggested a higher level of conceptual development for a considerable proportion of the group.

Included in the examination of the relationships between the CST and the REPI were the intercorrelations within each set of variables. High positive correlations (above .40) were found between: Divine Fate Control and Need for Structure-Order; Need for People and Need to Help People; and Interpersonal Aggression and Anomie. The related variables corresponded to the proximal CST factors reported by Harvey (1967) and defined in Chapters I and II.

High positive correlations (above .40) were also found between: Idealism and Existentialism; Realism and Pragmatism; and Pragmatism and Existentialism. With the possible exception of Pragmatism and Existentialism, the reported relationships do not seem to follow from the definitions of the philosophical variables in Chapters I and II. The results can be interpreted in terms of the higher scores of the concrete subjects, on each of the REPI scales, forming relationships that were not considered plausible.

Anomie was the only CST factor related to all four measures of the major philosophical systems. The positive validities reported among Anomie and the REPI scores implied relationships similar to those discussed for concrete subjects and their REPI scores. The only high validity (above .40) was found between the CST variable, Divine Fate Control, and the REPI variable, Idealism.

A significant canonical correlation, on the first canonical function, indicated a relationship among the CST and REPI variables. High factor loadings (positive) and vector weights (positive) indicated

the related variables were the CST factor, Divine Fate Control (DFC), and the REPI scale, Idealism.

An Idealist, according to the REPI Manual (Ross, 1970b), has basically an authoritarian personality. High DFC scores are indicative of System 1 functioning and the syndrome of authoritarianism (Harvey, 1966). It seems to follow then, that authoritarianism could be the mediating link between DFC and Idealism.

In summary, the following major conclusions emerged from this study:

1. Concerning the variables of age, sex, and teaching experience, it was concluded the New School program was meeting one of its original objectives, the recruiting and training of older, experienced, "less-than-degree" teachers. Also, the New School and Teacher Corps programs were more successful in attracting men into the elementary teaching profession. On the CST variables it was concluded the programs differed as follows: College of Education and Teacher Corps subjects possessed a greater respect for authority; College of Education subjects compared to New School subjects were more influenced by the need to seek group approval for their actions and values; New School and Teacher Corps subjects tended toward interpersonal aggression; and Teacher Corps subjects were the most affected by impaired social norms. On the REPI variables, it was concluded that no meaningful interpretation could be placed on the higher scores, of the Teacher Corps, for Idealism, Realism, Pragmatism, and Existentialism.

2. In considering the conceptual orientations of the subjects, a significant difference was found for year in program of System 4

subjects. It was concluded that seniors were conceptually more complex than juniors as might be predicted from the Conceptual Systems Theory.

3. In considering the philosophical orientations of the subjects, no significant differences were found. It was concluded, the philosophical orientations of the elementary majors did not seem to appreciably change over the years.

4. Concerning the conceptual and philosophical orientations of the subjects, Divine Fate Control and Idealism were found to be positively related. It was concluded that possibly authoritarianism was the mediating link between DFC and Idealism.

Recommendations

Several recommendations were suggested from the present study which should be helpful for future research on elementary teachers in the affective domain.

1. It is recommended that any unified elementary teacher training program, at the University of North Dakota, provide alternative experiences modulated to reported differences in the programs. Special emphasis should be placed on determining the conditions that are conducive to certain features of the programs considered beneficial; and means of eliminating other features considered spurious. The goal of such an effort should be the training of teachers who are conceptually more complex and philosophically more committed in the affective domain.

2. The present study concluded the REPI Idealism scale and the CST factor, Divine Fate Control, were measures of authoritarianism. A cross-validation study should be undertaken to determine the relationships of these measures to Adorno's F scale on authoritarianism. In

this way it could be determined whether the relationships are consistent for both the CST and REPI variables.

3. It is suggested that the same research questions and hypothesis in the present study be applied to the faculties of the UND elementary education programs. Results from such a study could then be compared with the results of the present study.

4. It is recommended that entering students should be tested and compared to graduating students, preferably, on a longitudinal basis. This should provide useful information about individual differences and the effectiveness of various options to accommodate trainee variation.

5. It is suggested that the REPI utilize a different scoring procedure. At present, high scores on the REPI are given to individuals who "agree" with the statements. The possible error due to acquiescence might be reduced by including an equal number of reverse-score items on each of the scales.

6. It is recommended that another study be undertaken which would include secondary majors and graduate students in education. Possibly this sort of investigation could be extended to various other areas of the university as well.

7. It is suggested that research be undertaken into the construct validity of the REPI. For example, because of the newness of the instrument, there are no validity studies comparing it to other scales.

8. Finally, it is recommended that a subsequent study be carried out on the relationship between conceptual orientation and

cognitive dissonance. One basis for such a study is the Conceptual Systems viewpoint that System 2 individuals reject authority but want and need to trust and rely upon this same authority.

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